Acer Altos G540 Series

User's Guide

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Record the model number, serial number, purchase date, and place of purchase information in the space provided below. The serial number and model number are recorded on the label affixed to the unit. All correspondence concerning the unit should include these information.

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Acer Altos G540 Series

Model Name : G540

Part Number: MU.R230E.001

Purchase Date: ____________________

Place of Purchase: ____________________

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Notices

FCC notice

Class A devices do not have an FCC logo or FCC IDE on the label. Class B devices have an FCC logo or FCC IDE on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A equipment

This device has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Notice: Peripheral devices

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class A limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this server.

Use conditions

This part complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice: Canadian users

This Class A digital apparatus meets all requirements of the Canadian nterference-Causing Equipment Regulations.

Laser compliance statement

The CD-ROM drive in this server is a laser product. The CD-ROM drive's classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT
CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

Important safety instructions

Read these instructions carefully. Save these instructions for future reference.

1 Follow all warnings and instructions marked on the product.

2 Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

3 Do not use this product near water.

4 Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

5 Slots and openings on the front and rear side of the chassis are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

6 This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

7 Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

8 If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.

9 Never push objects of any kind into this product through chassis slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

10 Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

11 Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

   a When the power cord or plug is damaged or frayed.

   b If liquid has been spilled on the product.

   c If the product has been exposed to rain or water.

   d If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

   e If the product has been dropped or the chassis has been damaged.

   f If the product exhibits a distinct change in performance, indicating a need for service.

12 Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified service technician.

13 **Warning!** Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep batteries away from children. Promptly dispose used batteries according to regulations applicable to your area.

14 Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

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1 System tour

The Acer Altos G540 server is a fully modular dual-processor system featuring the latest in computing technology. It host a range of powerful and flexible features designed to meet the needs of various network environments. From simple networking functions to computing intensive applications, the Altos G540 delivers.

System specifications

This section lists down the impressive computing features of the Altos G540 system.

Performance

Processor

- Two Intel LGA771 processor sockets supporting Dual-Core Intel® Xeon™ processor
- 2x 2 MB or 4 MB external L2 cache
- 1066 or 1333 MHz FSB speed
- Support for the following Intel technologies:[1]
  - Hyper-Threading (HT) Technology
  - Intel Extended Memory 64 Technology (EM64T)
  - Virtualization Technology
  - Demand Based Switching Technology
  - Compatibility with the broadest range of 32- and 64-bit applications
  - Execute Disable Bit and reliable RAS security features

Chipset

- North bridge - Intel 5000P Memory Controller Hub (MCH)
- South bridge - Intel 6321ESB I/O Controller Hub (ICH)

Memory

- Eight fully-buffered DIMM (FBD-DIMM) slots supporting 240-pin, DDR2 667 FBD ECC modules
- 16 GB maximum memory capacity
- Quad channel memory bus

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[1] For more information on these Intel technologies, visit the Intel Xeon web site at http://www.intel.com/products/processor/xeon/index.htm.

PCI interface

- Six PCI bus slots with three separate bus segments
  - Three PCI Express x8 bus slots
  - Two 64-bit, 66/100 MHz PCI-X bus slots
  - One 32-bit/33 MHz PCI bus slot
- One dedicated PCI-X slot for the optional SAS controller board.

Video controller

- Integrated ATI ES1000 chipset
- 16 MB DDR SDRAM

Networking

- Two Gigabit Ethernet LAN ports (RJ-45)
- Intel I/O Acceleration Technology (IOAT) support via Intel ESB2

Media storage

- Two 5.25-inch device bays support:
  - CD-ROM, DVD-ROM, DVD-RW, DVD combo drive
  - DAT tape drive
  - AIT tape drive
  - LTO-2 half-height tape drive
- 3.5” floppy disk drive (FDD)
- Two hard disk drive (HDD) cage bays support:
  - Hot-swap or easy-swap HDD cages
  - Up to eight SAS/SATA2 drive support (four drives per HDD cage)
- Embedded SATA2 controller with six onboard connectors

I/O ports

- Two front USB 2.0 ports
- PS/2 keyboard port
- PS/2 mouse port
- Serial port
- Monitor port
- Parallel port
- Four rear USB 2.0 ports
- Two Gigabit LAN ports (RJ-45)

Power supply and system fan

- 610-watts power supply with redundant option
- System fan with redundant option

Hardware monitoring and server management

- Winbond W83792D hardware monitoring IC for voltage, temperature, and fan speed detection
- LED indicators for constant monitoring of basic system function
- Acer Server Management (ASM) monitors potential problem spots in the network environment

Operating system

- Microsoft® Windows® Server 2003
- Microsoft Windows Server 2003, x64 Edition
- Red Hat® Enterprise Linux® 4.0
- Red Hat Enterprise Linux 4.0, x86_64
- Novell® NetWare® 6.5
- SUSE Linux® Enterprise Server 9.0
- SUSE Linux Enterprise Server 9.0, EM64T

Mechanical

- Chassis
  - Tool-less chassis design for easy hardware access and configuration
  - Tower and rack-mount (5U, tray-less) setup options
  - Dimensions
    - Height: 445 mm (17.5 in)
    - Depth: 212 mm (8.3 in)
    - Width: 550 mm (21.6 in)
- Mainboard
  - Dimensions (length x width): 304.8 x 330.2 mm (12 x 13 in)
  - Platform: Extended ATX (EATX)

Environmental

- Temperature
  - Operating: +10° to +35°C with the maximum rate of change not to exceed 10° per hour.
  - Non-operating: -40° to +70°C
- Humidity, non-operating : 90%, non-condensing @ 35°C
- Vibration, operating: Half sine, 2g peak, 11 m/sec
- System cooling: 2081.5 BTU/hour

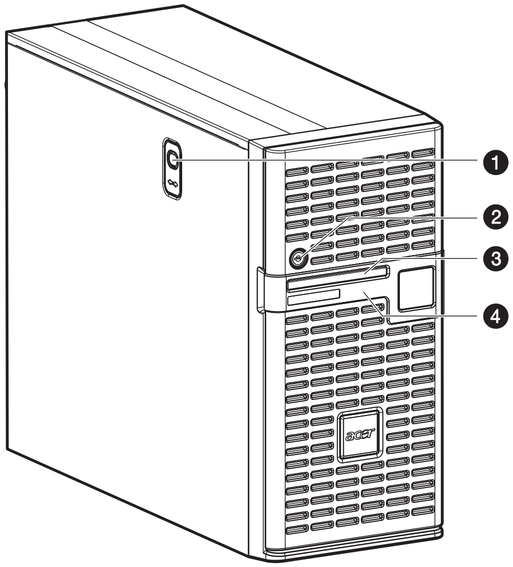
Hardware options

Note: To purchase the any of the following hardware options, contact your local Acer representative.

- Media storage
    - LSI 1068 SAS controller board provides both SAS and SATA2 support
    - LSI MegaRAID SAS RAID controller board supports:
        - Hardware RAID 0, 1, 5, 10, and 50 levels
        - Backup battery unit (BBU) option
    - Ultra 320 SCSI HBA (for backup devices only)
- Redundant modules
    - Hot-swap redundant power supply
    - Redundant system fan
- Server management
    - BMC (Baseboard Management Controller) module
        - IPMI (Intelligent Platform Management Interface) 2.0 compliant
        - In-band and out-band server management
    - ARMC/3 (Acer Remote Management Card/3) module
        - High performance KVM redirection
        - Includes a dedicated NIC port
        - USB mouse, keyboard, and media redirection

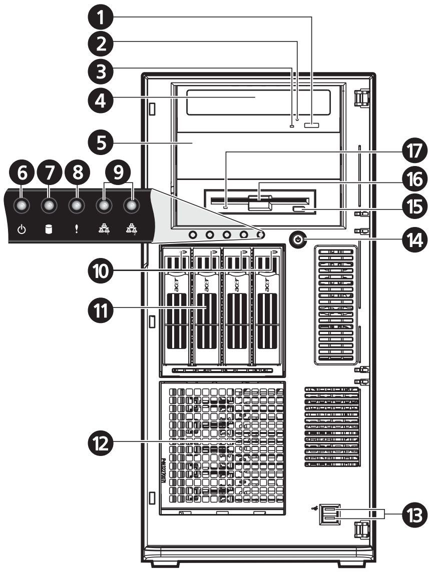
External and internal structure

Front bezel



No.	Component
1	Side panel release button
2	Security keylock This lock secures the bezel door to protect the server unit from unauthorized access.
3	LED indicator panel For more information on the LED indicators description, go to page 21.
4	Bezel door

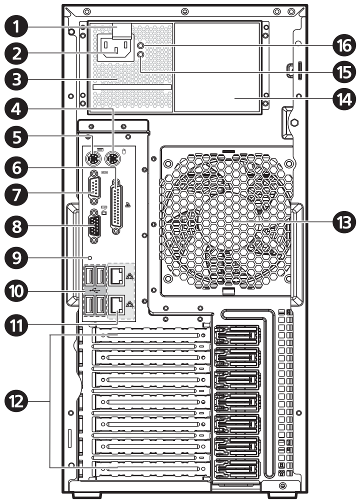
Front panel



No.	Icon	Component	Description
1		DVD-ROM drive Eject button	Press this button to open the DVD drive tray.
2		DVD-ROM drive activity indicator	When the LED indicator is lit, there is an ongoing DVD drive activity.
3		DVD-ROM drive mechanical eject hole	When the DVD drive tray get stucked, insert a paperclip to this hole to manually eject the tray.
4		DVD-ROM drive	Disk drive for reading CD, VCD, and DVD contents.
5		5.25-inch drive bay	Allows installation of additional storage devices. Go to page 4 for a list of supported devices.
6	⏻	Power indicator	Indicates the system power status (green).
7	⛁	HDD activity indicator	Indicates the status of a system hard drive (green/amber).
8	!	Status/fault indicator	Indicates the status of the system operations (green/amber).

No.	Icon	Component	Description
9	🖧 1 🖧 2	LAN port 1/2 status indicators	Indicate the system network connection status.
10		Hot-plug HDD activity indicator	Indicates the status of a hot-plug HDD installed in the system (green /amber).
11		HDD cage	Supports four hot-plug or easy-swap SAS or SATA2 HDDs.
12		HDD cage bay	Supports an optional four-bay HDD cage (hot-plug or easy-swap).
13	⭠	USB 2.0 ports	Connects to USB devices.
14		Power button	Press to turn the server on/off, or to put it in standby mode.
15		FDD Eject button	Press this button to eject the floppy disk from the FDD.
16		Floppy disk drive	Disk drive for reading floppy disks.
17		FDD activity indicator	When the LED indicator is lit, there is an ongoing FDD activity.

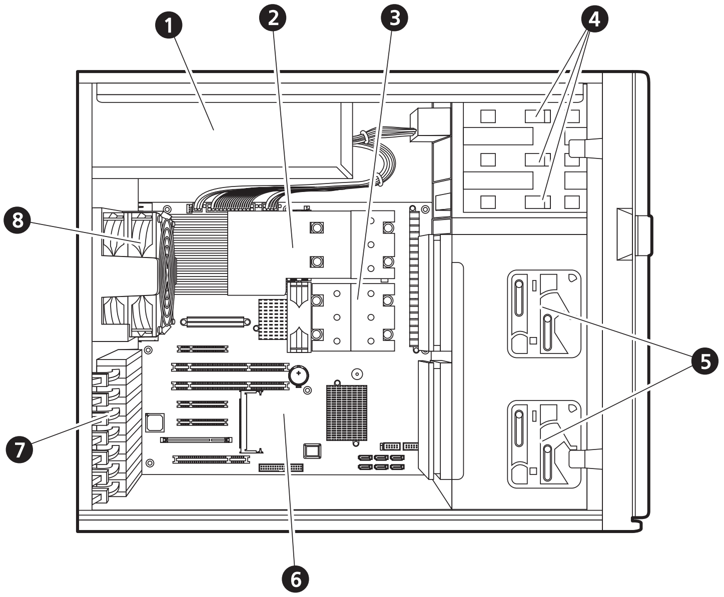
Rear panel



No.	Icon	Component	Description
1		Power supply module release latch	Push down the latch to disengage the module from the chassis.
2		Power supply module cord socket	Connect the system power cord here.
3		Main power supply module	Provides the system's main power supply.
4	🖱	PS/2 mouse port	Connects to a PS/2 mouse.
5	⌨	PS/2 keyboard port	Connects to a PS/2 keyboard.
6	🖶	Parallel port	Connects to parallel devices.
7	IOIOI	Serial port	Connects to serial devices.
8	IOIOI/▭	Monitor port	Connects to monitors.

No.	Icon	Component	Description
9		Unit identification (UID) switch/ indicator	Press to mark a particular server unit within a server group (when rack-mounted) for purpose of identification during servicing or maintenance procedures. (blue)
10		USB 2.0 ports	Connects to USB devices.
11	🖧 1 🖧 2	Gigabit LAN ports 1/2	Connects to an Internet or intranet network.
12		PCI slot covers	Protects the vacant expansion slots.
13		System fan	Regulates the system airflow.
14		Redundant power supply module bay	Accommodates an optional hot-swap redundant power supply module.
15		Power supply module fault indicator	Indicates the occurrence of a fault condition in the power supply module. (green/amber)
16		Power supply module status indicator	Indicates the status of the power supply module. (green)

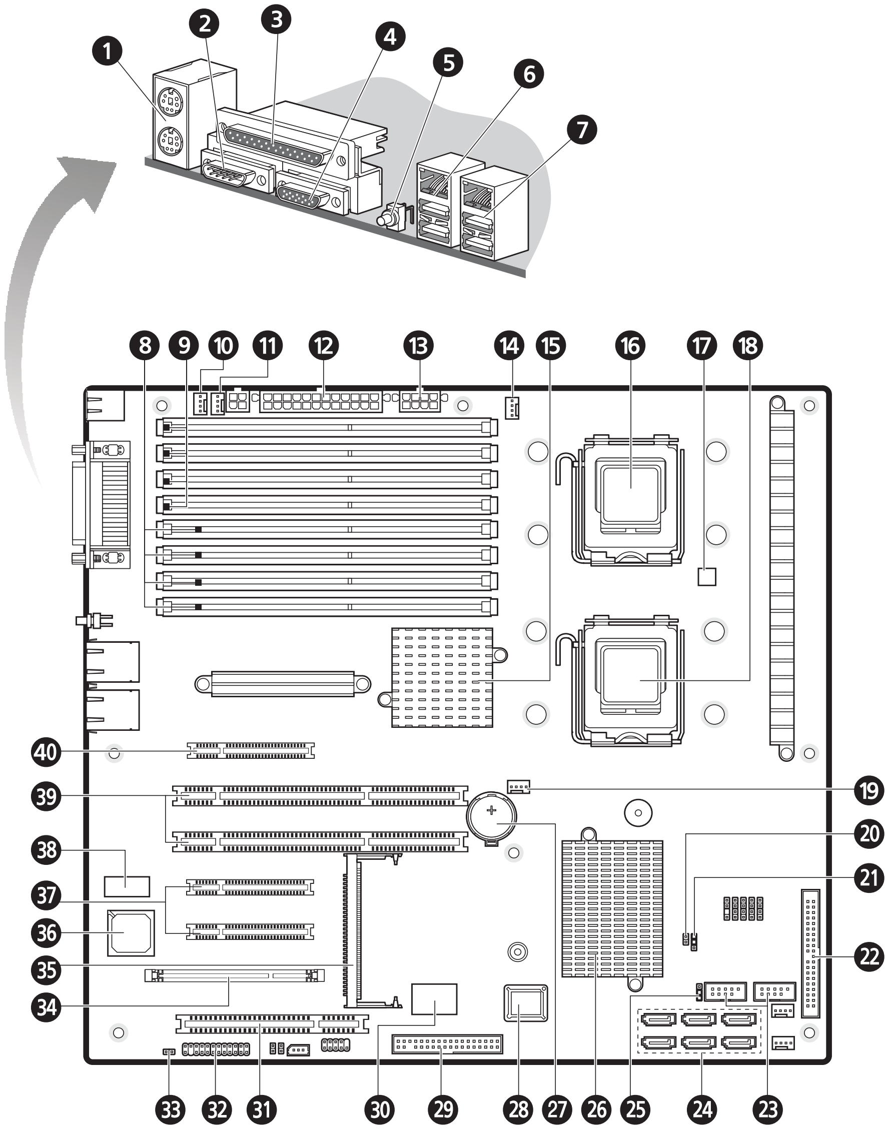
Internal components



No.	Component
1	Redundant power supply module bay
2	Air duct
3	Heat sink fan (HSF) assemblies
4	Release sliders for the 5.25-inch devices
5	Release sliders for the HDD cages
6	Mainboard
7	PCI slot lock levers
8	System fan Users have the option to purchase a redundant system fan unit.

System boards

Mainboard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No.	Code	Description
1	CN2	Top: PS/2 mouse port Bottom: PS/2 keyboard port
2	COM1	Serial port
3	LPT1	Parallel/printer port
4	VGA1	Monitor port
5	SW1	UID switch
6	—	Gigabit LAN ports
7	—	USB 2.0 ports
8	DIMMA1 DIMMA2 DIMMB1 DIMMB2	Branch 0 FBD slots
9	DIMMC1 DIMMC2 DIMMD1 DIMMD2	Branch 1 FBD slots
10	FAN_R2	System fan 2 cable connector
11	FAN_R1	System fan 1 cable connector
12	ATX1	24-pin ATX power connector
13	ATX3	8-pin ATX power connector
14	FAN_CPU1	Processor 1 HSF cable connector
15	U47	Intel 5000P MCH (north bridge)
16	CPU 1	Processor 1 socket
17	U108	Winbond W83792D hardware monitoring IC
18	CPU 2	Processor 2 socket
19	FAN_CPU2	Processor 2 HSF cable connector

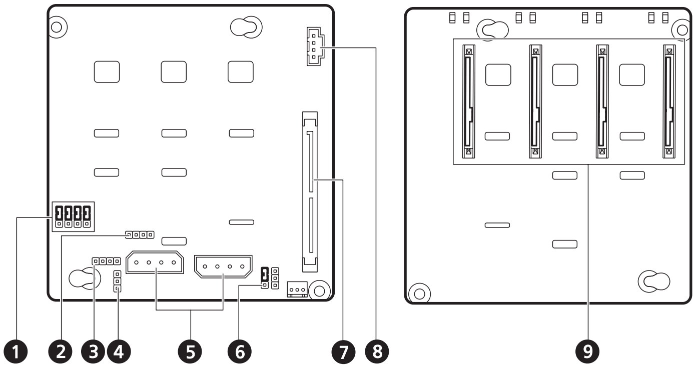
No.	Code	Description
20	JP_PASS1	Clear password jumper Open – Normal (default) Close – Clear password
21	JP_REC1	BIOS recovery jumper 1-2 – Enable BIOS recovery 2-3 – Disable (default)
22	IDE1	IDE cable connector
23	USB1 and USB2	Front USB connectors
24	SATA HDD 0-5	SATA2 data cable connectors
25	CLR_CMOS1	Clear CMOS jumper Close 1-2 – Normal CMOS settings (default) Close 2-3 – Clear CMOS, restore system defaults
26	U69	Intel ESB2 ICH (south bridge)
27	BAT1	CMOS battery
28	U61	BIOS flash ROM (Read-Only Memory)
29	FDC1	FDD cable connector
30	U45	ITE ITE8712F-A I/O controller
31	PCI7	32-bit/33 MHz PCI expansion slot
32	JP_FP1	Signal cable connector for the front panel LED indicators/power button
33	—	Chassis intrusion connector
34	IPMB_6	BMC and ARMC/3 modules slot
35	SODIMM1	SAS controller board slot
36	U10	ATI ES1000 video controller

No.	Code	Description
37	PCI-E 4 PCI-E 5	PCI Express x8 expansion slots
38	U4	Video memory
39	PCI-X 2 PCI-X 3[1]	64-bit, 66/100 MHz PCI-X expansion slots
40	PCI-E 1	PCI Express x8 expansion slot

[1] The PCI-X 3 slot (green) supports the installation of a SAS ZCR (Zero Channel RAID) option card.

Backplane board

The backplane board attached to rear of the hot-plug HDD cage is what differentiate it from the easy-swap HDD cage model.

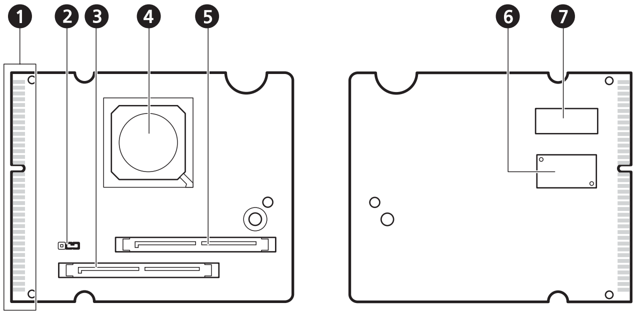


No.	Code	Description
1	J7 to J10	SAS/SATA2 HDD access LED control jumpers Close 2-3 – HDD LED control via pin 11(default)
2	SGIO_JP	Debug/diagnostic connector
3	JP2	SAF-TE firmware flash connector
4	J4	Backplane board peering cable connector
5	CN1 and CN2	Power cable connectors for the SAS/SATA2 HDD

No.	Code	Description
6	792D_ID1	HDD cage ID setting jumper Close 1-2 – 5C (default for top HDD cage) Close 2-3 – 58 (default for bottom HDD cage)
7	SAS/CON	SAS/SATA2 HDD data cable connector
8	J5	Backplane board management cable connector
9	SATA/SAS_1-4	SAS/SATA2 HDD connectors

SAS controller board

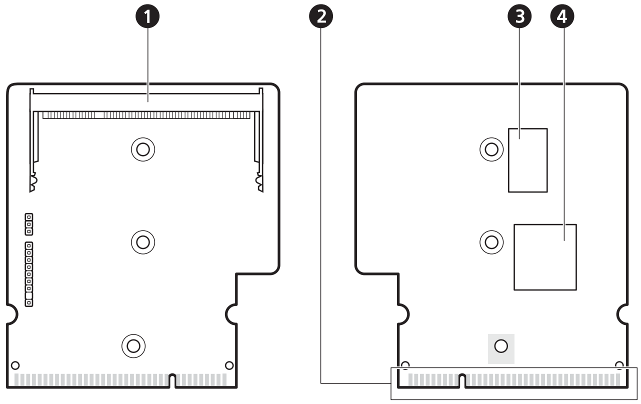
This controller board enables the installation of a SAS HDD.



No.	Code	Description
1	SODIMM_CON1	Controller mainboard connector
2	JP3	SAS controller RAID jumper Set to **Close 2-3** to enable firmware RAID/ 0 channel RAID support (default)
3	SAS1-1	SAS data cable connector 1
4	U1	LSI SAS 1068 chipset
5	SAS1-2	SAS data cable connector 2
6	SU3	Flash ROM
7	U5	nvSRAM (non-volatile SRAM)

BMC module

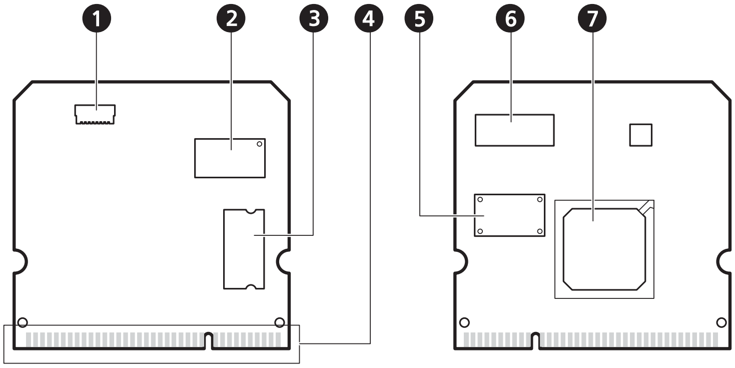
The optional BMC module is the meeting point between the server hardware and the system management software. In conjunction with the mainboard hardware monitor, it allows system administrators to manage the system remotely over a network.



No.	Code	Description
1	SODIMM1	ARMC/3 module connector
2	DIMM1	BMC module mainboard connector
3	U3	SDRAM (Synchronous Dynamic Random Access Memory)
4	U1	H85/216x BMC chipset

ARMC/3 module

The optional ARMC/3 module expands the server's remote management function through its own dedicated NIC port. System administrators can now have full remote access to the server regardless of its condition. Options to access server configuration, performance and storage; view a summary of key components; and monitor system health events are readily access using a simple browser.



No.	Code	Description
1	LAN1	Dedicated NIC port cable connector
2	U6	SRAM (Static Random Access Memory)
3	U9	SDRAM
4	SODIMM1	ARMC/3 module mainboard connector
5	U8	Flash ROM
6	U5	SRAM
7	U1	Peppercon KIRA 100 chipset

System LED indicators

This section discusses the different LED indicators located on the:

- Front panel
- Hot-plug HDD carrier
- LAN port
- Power supply module

Knowing what each LED indicator signifies can aid in problem diagnosis and troubleshooting.

Front panel LED indicators

The five LED indicators mounted on the front panel allow the constant monitoring of basic system functions. These indicators remain visible even when the bezel door is closed.

Indicator	Color	Status	Description
Power	Green	On	The system has AC power and is powered on.
		Blinking	The system is in standby mode.
HDD activity	Green	Blinking	There is an ongoing HDD activity.
	Amber	On	An system hard drive failed.
Status/fault[1]	Green	On	System in normal mode.
	Amber	On	Critical system threshold breach Access the Setup utility and view the system event log for details.
LAN port 1/2 connection	Green	On	Network connection is established.
		Blinking	Network connection is established and is running at supported speed.
		Off	Network connection is not established.

[1] The status/fault LED indicator is only enabled when the optional BMC module is installed on the mainboard. To purchase this option, contact your local Acer representative.

Hot-plug HDD LED indicator

A drive activity LED indicator is mounted on the hot-plug HDD carrier. The table below lists the possible drive states.

Status	Green	Amber	Description
HDD access	Blinking	—	Ongoing hot-plug HDD activity
HDD failure	—	On	Hot-plug HDD failure
HDD rebuild	Flashing green/amber		HDD is rebuilding data.

LAN port LED indicators

Indicator	Color	Status	Description
Network speed (top)	Amber	On	GbE link network access
	Green	On	100 Mbps link network access
		Off	10 Mbps link network access
Network connection (bottom)	Green	On	Active network link
		Blinking	Ongoing network data activity
		Off	Off-line network

Power supply module LED indicators

Indicator	Color	Status	Description
Status (top)	Green	On	Output requirements are met.
		Off	AC power is disconnected from the module.
Fault (bottom)	Green	On	Input voltage requirements are met.
	Amber	On	• Overvoltage • Overcurrent • Output short circuit
		Off	AC power is disconnected from the module.

2 System setup

This chapter gives you instructions on how to prepare the system for operation. Procedures for connecting peripherals are also explained.

Setting up the system

Pre-installation requirements

Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. Consider the following factors when choosing a site for the system:

- Near a grounded power outlet
- Clean and dust-free
- Stable surface free from vibration
- Well-ventilated and away from sources of heat
- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

Checking the package contents

Check the following items from the package:

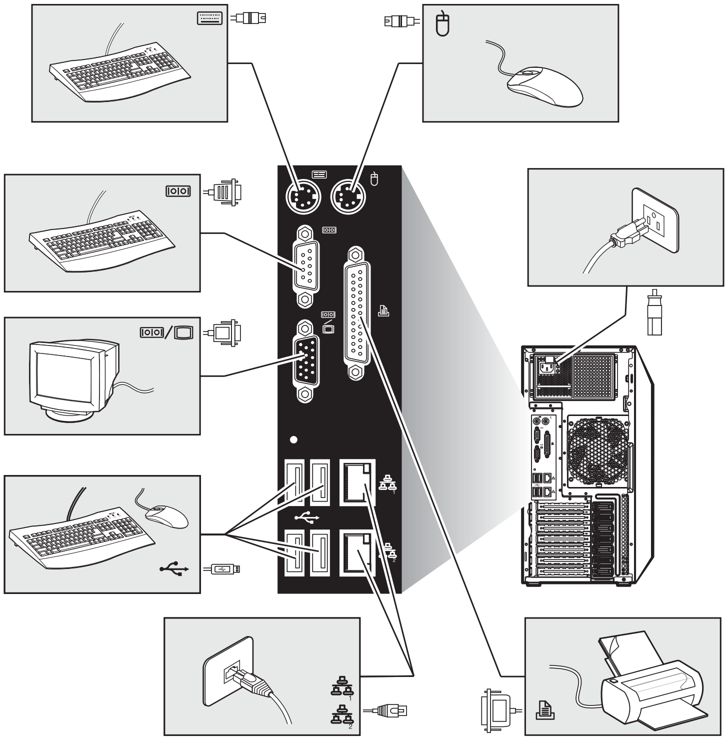
- Acer Altos G540 system
- Acer EasyBUILD™ DVD Pack
- Acer Altos G540 accessory box
- System keys (attached to the rear of the bezel door)

If any of the above items are damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

Connecting peripherals

The color-coded I/O port panel on the system rear accepts a variety of compatible peripherals. Refer to the figure below for specific connection instructions for each port.



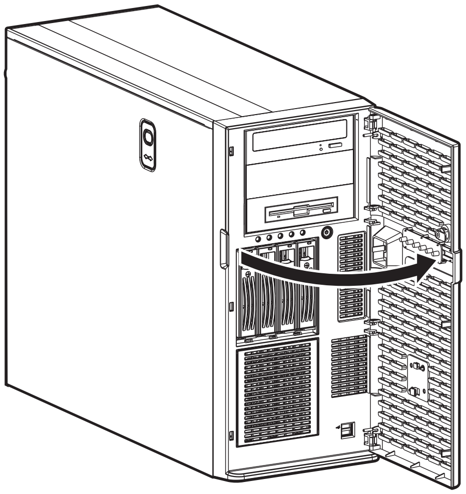
Note: Consult the operating system manual for information on how to configure the network setup.

Caution: Do not route the power cord where it will walked on or pinched by items placed against it. The server is designed to be electrically grounded (earthed). To ensure proper operation, plug the power cord into a properly grounded AC outlet only.

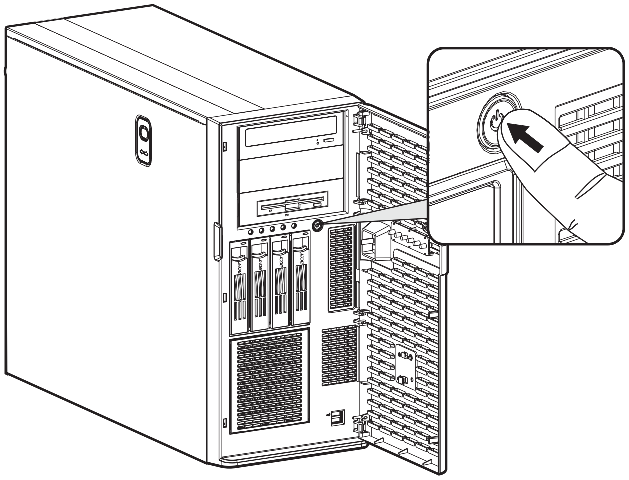
Turning on the system

After making sure that you have properly set up the system, applied power, and connected all the necessary peripherals, you can now power on the system. Follow the procedure below.

1 Open the bezel door.



2 Press the power button.



The system starts up and displays a welcome message on the monitor. After that, a series of power-on self-test (POST) messages appears. The POST messages indicate if the system is running well or not.

Note: If the system does not turn on or boot after pressing the power button, go to the next section for the possible causes of the boot failure.

Aside from the POST messages, you can determine if the system is in good condition by checking if the following occurred.

- The power status indicator on the front panel lights up green.
- The Num Lock, Caps Lock, and Scroll Lock indicators on the keyboard light up.

Power-on problems

If the system fails to boot after you have applied power, check the following factors that might have caused the boot failure.

- The external power cord may be loosely connected.

  Check the power cord connection from the power outlet to the power cord socket on the rear panel. Make sure that the cord is properly connected to the power outlet and to the power cord socket.
- No power comes from the grounded power outlet.

  Have an electrician check your power outlet.
- Loose or improperly connected internal power cables.

  Check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to assist you.

Warning! Make sure all power cords are disconnected from the electrical outlet before performing this task.

Note: If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

Configuring the system OS

The Altos G540 comes with Acer EasyBUILD that allows users to conveniently install the preferred operating system. To start using EasyBUILD, follow the steps below.

1 Locate the EasyBUILD DVD included in the system package.

2 With the system turned on, press the DVD-ROM drive Eject button.

3 When the disc tray slides open, insert the EasyBUILD DVD with the label side of the disc facing upward.

Note: When handling the disc, hold it by the edges to avoid smudges or fingerprints.

4 Gently press the disc down to make sure that it is properly inserted.

Caution: While pressing the disc, be careful not to bend the disc tray. Make sure that the disc is properly inserted before closing the disc tray. Improper insertion may damage both the disc and the DVD-ROM drive.

5 Press the drive Eject button again to close the disc tray.

6 The Acer EasyBUILD sequence begins. Follow all onscreen instructions.

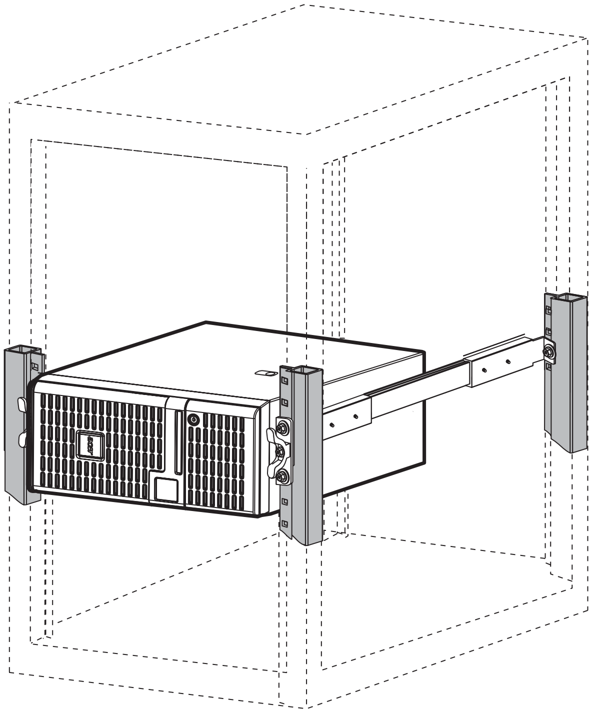
For more information, refer to the EasyBUILD Installation guide.

Note: EasyBUILD only supports the Microsoft and Red Hat Linux operating systems. The Windows or Red Hat installation disc(s) is required to install the OS.

Rack mount configuration

The Altos G540 server is a dual-platform system that can be set up in both tower and rack-mount configurations. A rack mount kit is available for customers who prefer to mount the server in a system rack. To purchase a rack mount kit, contact your local Acer representative or order directly from http://www.acer.com/.

The figure below shows the Altos G540 server in a rack-mount position.



For instructions on tower-to-rack configuration, refer to “Appendix B: Rack mount configuration” on page 119.

Turning off the system

There are two ways to turn off the server—via software or via hardware. The software procedure below applies to a system running on a Windows OS. For other NOS shutdown procedures, refer to the related user documentation.

To turn off the system via software:

1 Press **Ctrl**+**Alt**+**Delete** on the attached keyboard or click the **Start** on the Windows taskbar.

2 Select **Shut Down.**

3 Select **Shut down** from the drop-down menu, then click **OK**.

To turn off the system via hardware:

If you cannot shut down the server via software, press the power button for at least four seconds. Quickly pressing the button may put the server in a Suspend mode only.

3 System upgrade

This chapter discusses the precautionary measures and installation procedures you need to know when upgrading the system.

Installation precautions

Before you install any server component, it is recommended that you read the following sections first. These sections contain important ESD precautions along with pre-installation and post-installation procedures.

ESD precautions

Electrostatic discharge (ESD) can damage static-sensitive hardware components, such as the processor, disk drives, and the system boards. Always observe the following precautions before you install a server component:

- Do not remove a component from its protective packaging until you are ready to install it.
- Do not touch the component pins, leads, or circuitry.
- Components with a Printed Circuit Board (PCB) assembly should always be laid with the assembly-side down.
- Wear a wrist grounding strap and attach it to a metal part of the server before handling components. If a wrist strap is not available, maintain contact with the server throughout any procedure requiring ESD protection.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and foam packing.

Pre-installation instructions

Perform the steps below before you open the server or before your remove or replace any component.

Warning! Failure to properly turn off the server before you start perform any hardware configuration may cause serious damage and bodily harm. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

1. Turn off the server and all connected peripherals.
2. Unplug all power cables from their outlets.
3. Disconnect all telecommunication cables from their ports.
4. Place the server on a flat, stable surface.
5. Open the server according to the instructions on page 39.
6. Follow the ESD precautions described in the previous section when handling a server component.

Post-installation instructions

Perform the steps below after installing a server component.

1. See to it that all components are installed according to the described step-by-step instructions.
2. Reinstall any expansion board(s), peripheral(s), bracket (s) and system cable(s) that have previously been removed.
3. Reinstall the side panel.
4. Reconnect the power, peripheral, and telecommunication cables.
5. Turn on the system.

Opening the server

Caution: Before you proceed, make sure that you have turned off the system and all peripherals connected to it. Read the "Pre-installation instructions" section on page 38.

You need to open the server before you can install upgrade components. The front bezel and (left) side panel are removable to allow access to the server's internal components. Refer to the following sections for instructions.

Removing the side panel

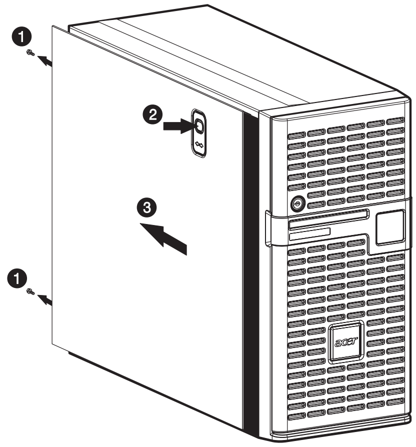
1 Perform the pre-installation instructions described on page 37.

2 Remove the side panel.

  (1) Remove the two screws located on the rear edge of the side panel.

  (2) Press the side panel release button.

  (3) Slide the side panel toward the rear of the chassis to disengage it.



Removing the front bezel

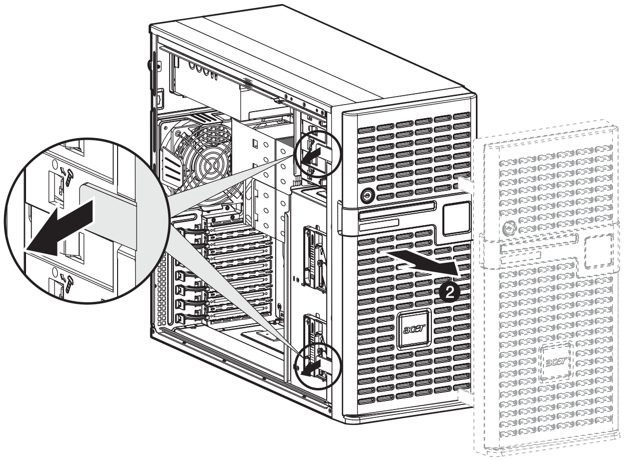
1 Remove the side panel.

Refer to the previous section for instructions.

2 Remove the front bezel.

(1) Release the bezel door retention tabs from the chassis interior.

(2) Pull the bezel away from the chassis.



Configuring the hard drive

The two HDD cage bays of the Altos G540 accommodates both hot-plug and easy-swap HDD cage models. The main difference between these two cage models is the presence of a backplane board on the rear side of the hot-plug HDD cage. Both cage models support up to four SATA2 or SAS hard disk drives.

The system ships out with only a single HDD cage occupying the top cage bay. You have the option to purchase an extra HDD cage to provide the system with additional storage capacity and scalability. Contact your local Acer representative for more information.

Note: The HDD cage comes with HDD dummy covers. You need to purchase a blank HDD carrier to install a hard drive.

Installing a HDD cage

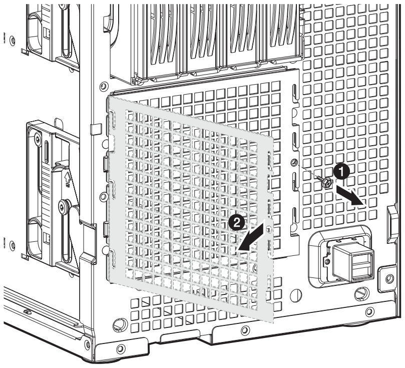
1 Perform the pre-installation instructions described on page 37.

2 Remove the HDD cage bay metal cover from the front chassis.

   (1) Remove the one screw that secures the cover.

   (2) Detach the cover from chassis.

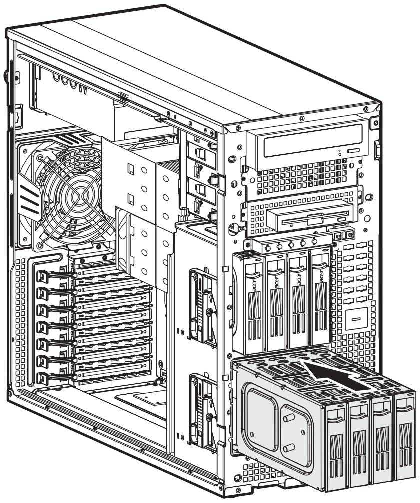
   Store this cover for future reinstallation.



3 Install the HDD cage.

(1) Slide the cage into the lower bay with the HDD carriers facing front.

The cage locked to the chassis with an audible click.



If you have installed a hot-plug HDD cage, proceed to next step for related drive cable connections.

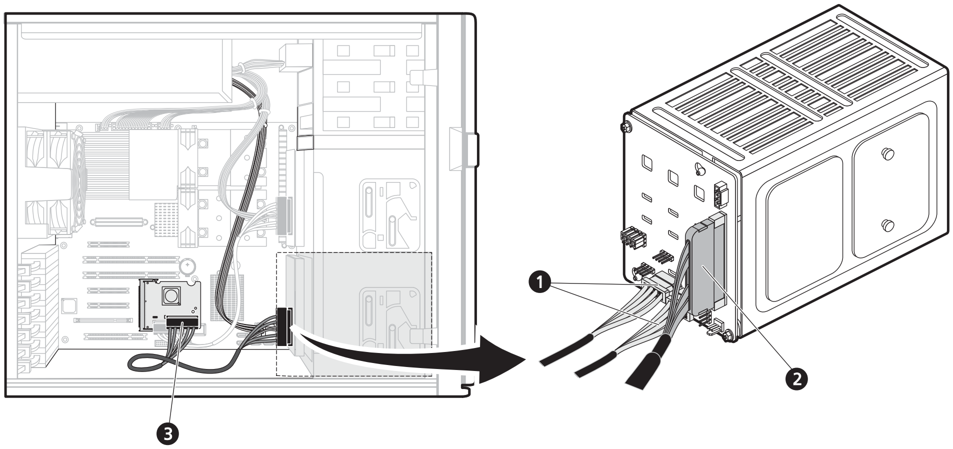
Drive cable connections for an easy-swap HDD can be found on page page 47.

(2) Connect the following cables to the hot-plug HDD cage backplane board.

  (1) Connect the hard drive power cables to the CN1 and CN2 connectors of the backplane board.

  (2) Connect the SAS/SATA2 cable to the SAS/CON connector of the backplane board.

(3) Connect the other end of the SAS/SATA2 cable to the SAS1-1 connector of the SAS controller board.

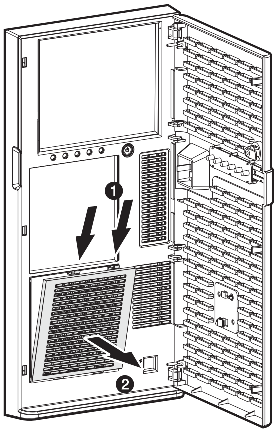


4 Remove the HDD cage bay plastic cover from the front bezel.

(1) Use a flat-blade screwdriver to disengage the tabs on the top edge of the cover from its bezel slots.

(2) Detach the cover from the bezel.

Store this cover for future reinstallation.



5 Observe the post-installation instructions described on page 38.

For instructions on how to install a hard drive in an easy-swap HDD cage, go to page 47.

For instructions on how to install a hard drive in a hot-plug HDD cage, go to page 45.

Removing a HDD cage

1 Perform the pre-installation instructions described on page 37.

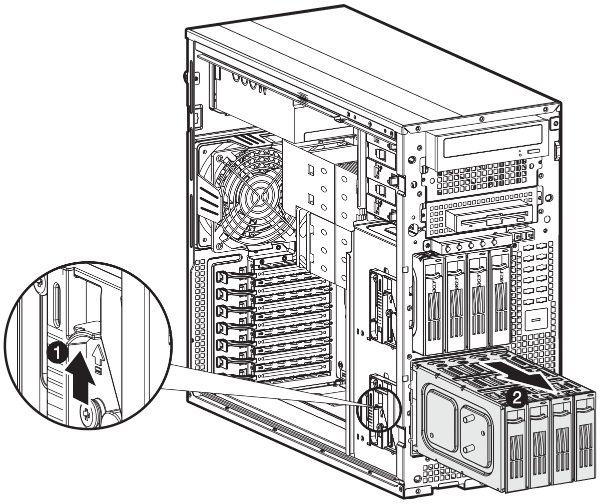
2 Prepare the HDD cage for removal.

- For a hot-plug HDD cage, disconnect the data and power cables from the backplane board, then remove all HDDs from the cage.
- For an easy-swap HDD cage, disconnect the data and power cables from their HDD connectors, then remove all HDDs from the cage.

3 Remove the HDD cage.

(1) Move the release slider all the way up to eject the hot-plug HDD cage.

(2) Remove the cage from the HDD bay.



4 Observe the post-installation instructions described on page 38.

Installing an additional hard drive

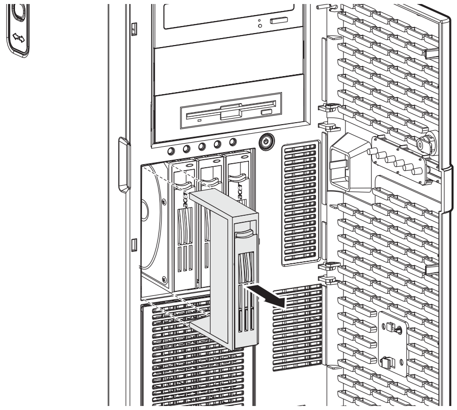
The Altos G540 HDD cage models supports both SATA2 and SAS hard drives in different capacities.

Note: If you intend to install a SAS hard drive model, you first need to install the SAS controller board option. For related instructions, go to page 62.

To install a hot-plug hard drive:

1 If necessary, unlock the front bezel, then pull it open.

2 Remove the HDD dummy cover from the cage.

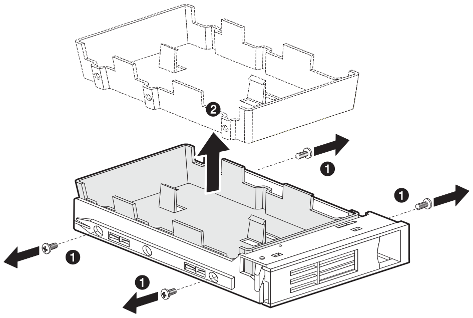


3 Prepare the blank HDD carrier for installation.

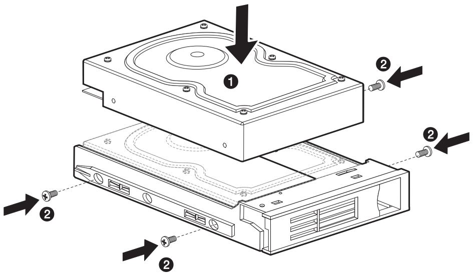
(1) Remove the four screws that secures the blank frame.

You will use these screws to secure the hard disk later.

(2) Detach the plastic frame from the HDD carrier.



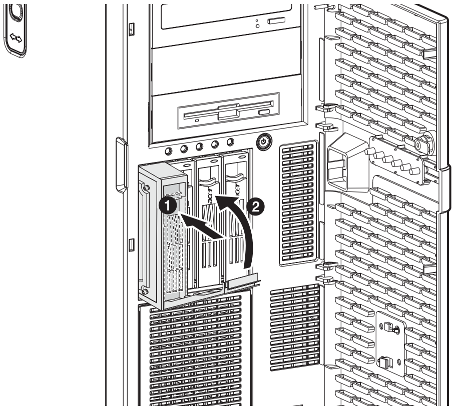
4 Align the new hard disk with the HDD carrier, then secure it with the four screws you removed in step 3-1.



5 Install the new hard drive into the cage.

(1) Slide the drive into the cage with the carrier handle still extended.

(2) Make sure that the drive is properly inserted before pushing the handle back until it clicks into place.



6 Set up the new hard drive's RAID configuration.

For related instructions, go to the "RAID configuration utilities" section on page 114.

To install an easy-swap hard drive:

1 Remove the side panel from the chassis.

  Go to page 39 for instructions.

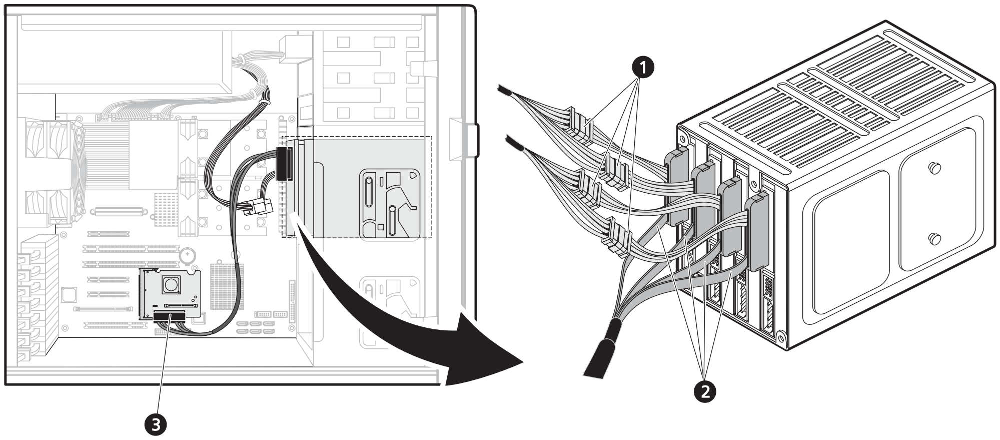
2 Observe steps 2 through 5 of the previous section.

3 Connect the easy-swap HDD cables.

  (1) Connect the power connectors of the SAS/SATA2 cable to the power supply module HDD power cables.

  (2) Connect the data connectors of the SAS/SATA2 cable to the signal connectors of the of the easy-swap HDDs.

  (3) Connect the other end of the SAS/SATA2 power cable to the SAS1-1 connector of the SAS controller board.



4 Observe the post-installation instructions described on page 38.

5 Set up the new hard drive's RAID configuration.

  For related instructions, go to the "RAID configuration utilities" section on page 114.

Configuring a 5-25 inch storage device

The three 5.25-inch device bays support a variety of storage devices for additional storage capacity and scalability. Go to page 4 for a list of supported storage devices.

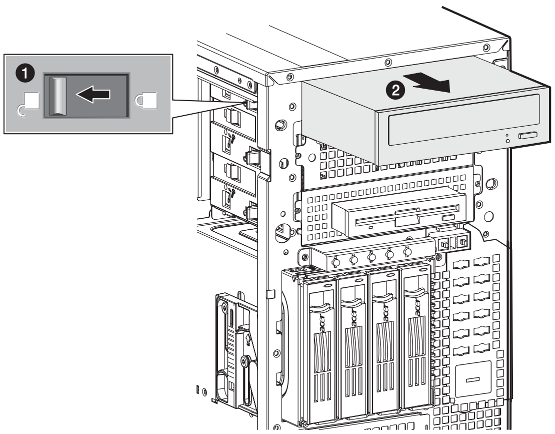
By default, the system ships with a DVD-ROM drive installed on the topmost device bay, and a floppy drive on the bottom-most device bay. You can choose to replace these default drives, or you can install a new storage device on the middle device bay.

To install an optional storage device:

1. Perform the pre-installation instructions described on page 37.
2. If you intend to replace a default storage device—the DVD drive or the floppy drive—go to the next step.

   If you intend to install a new storage device on the middle device bay, go to step 5.
3. Disconnect the power and data cables (IDE or FDD data cable) from rear of the old drive.
4. Remove the default drive you intend to replace.
   (1) Move the release slider of the selected drive to the unlock position 🔓.
   (2) Pull the drive out of the device bay.

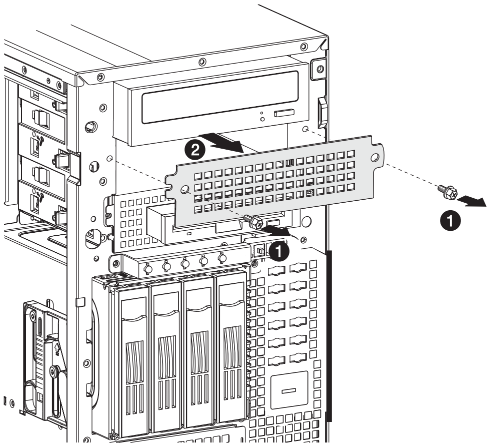
   The figure below shows how to uninstall the DVD-ROM drive.



Proceed to step 6 for instructions on how to install a new storage device.

5 Remove the two screws that secure the cover of the empty 5.25-inch drive bay **(1)**, then detach the cover **(2)**.

Keep this cover for future reinstallation.

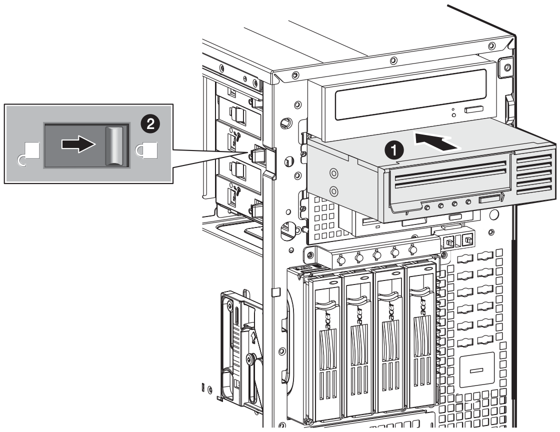


6 Install the new 5.25-inch storage device.

The instructions given below apply to a regular 5.25-inch storage device. If you intend to replace or install a floppy drive, refer to the documentation that came with the new drive for instructions on how to set up the FDD conversion kit.

(1) Install the new 5.25-inch drive into the drive bay.

(2) Move the release slider into the lock position 🔒.



(3) Connect the power and IDE cables to the new 5.25-inch drive.

7 Observe the post-installation instructions described on page 38.

Upgrading the processor

This section explains the procedures for removing and installing the processor and heat sink fan (HSF) assembly.

Processor configuration guidelines

The mainboard has two LGA771 processor sockets supporting Dual-Core Intel Xeon processors. You have the option to upgrade the default processor or install a second one for a dual-processor configuration.

Observe the following guidelines when replacing or installing a processor.

- The CPU 1 socket must always be populated. If no processor is installed in this socket, the system will fail to boot.
- Before removing a processor, make sure to back up all important system files.
- When installing a second processor, make sure it has same stepping and frequency specifications as the default processor.
- Handle the processor and the HSF assembly carefully. Damage to either may prevent the system from functioning properly.

Note: A long-nosed screwdriver is needed to remove/install the HSF assembly.

To upgrade the default processor:

1 Perform the pre-installation instructions described on page 37.

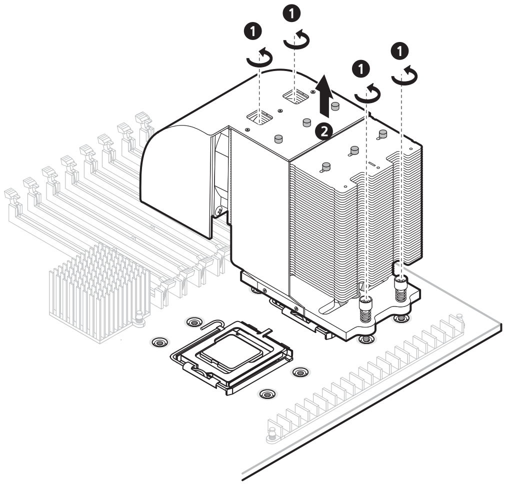
2 Lay the server on its side (components showing).

3 Disconnect the processor 1 HSF cable from its mainboard connector.

4 Remove the HSF assembly.

(1) Use a long-nosed screwdriver to loosen the four HSF mounting pins.

(2) Once you have loosened all four mounting pins, lift the HSF away from the mainboard.



(3) Lay down the HSF in an upright position—with the thermal patch facing upward. Do not let the thermal patch touch the work surface.

Use an alcohol pad to wipe off the thermal grease from both the HSF assembly and the processor socket retention plate.

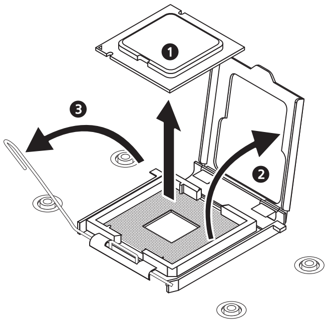
5 Remove the default processor.

Warning! The processor becomes very hot when the system is on. Allow it to cool off first before handling.

(1) Release then lift up the load lever.

(2) Open the retention plate to expose the socket body.

(3) Grasp the processor by its edges and lift it out of its socket.



6 Store the old processor inside an anti-static bag.

7 Remove the new processor from its protective packaging.

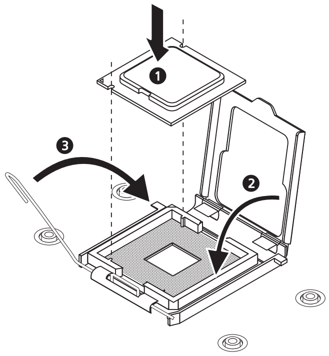
8 Install the new processor.

(1) Hold the processor by its edges, then insert it in the socket.

Make sure that the alignment tabs on the socket fit the two notch located on the edge of the processor. The pins are keyed in such a way that you cannot install the processor in the wrong orientation without bending the pins.

(2) Close the retention plate.

(3) Engage the load lever back into place.



9 Apply the thermal interface material.

(1) Use an alcohol pad to wipe off the old thermal grease from both the HSF assembly and the processor socket retention plate.

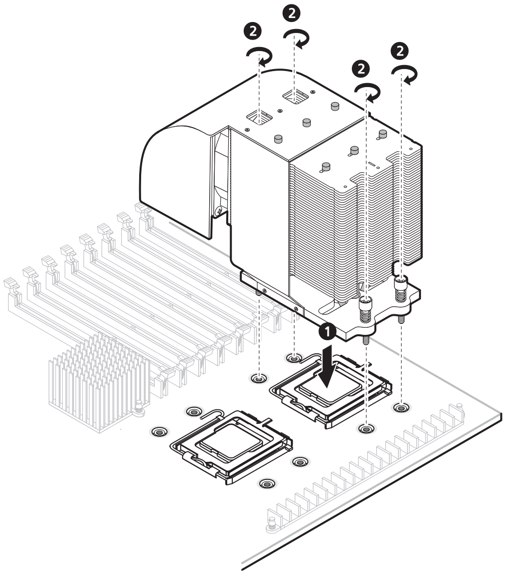
(2) Apply a thin layer of an Acer-approved thermal interface material before installing the HSF.

Make sure that only a *very thin layer* is applied so that both contact surfaces are still visible.

10 Reinstall the HSF assembly.

   (1) Align then insert the HSF on top of the retention plate.

   (2) Use a long-nosed screwdriver to tighten the four HSF mounting pins to secure the assembly.



11 Reconnect the HSF cable to its mainboard connector.

   Refer to the “Mainboard” section on page 14 for the location of the HSF connectors.

12 Observe the post-installation instructions described on page 38.

To install a second processor:

1 Perform steps 1 through 4 of the previous section.

2 Prepare the processor socket 2 for installation.

   Refer to steps 5-1 and 5-2 of the previous section.

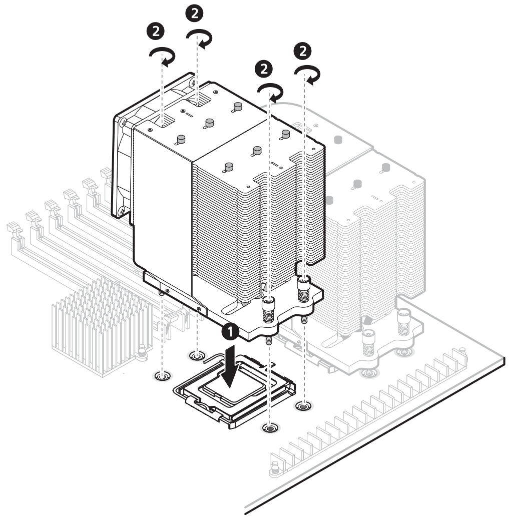
3 Install the new processor.

   Refer to steps 7 and 8 of the previous section.

4 Reinstall the HSF assembly.

  (1) Align then insert the HSF on top of the retention plate.

  (2) Use a long-nosed screwdriver to tighten the four HSF mounting pins to secure the assembly.



5 Observe the post-installation instructions described on page 38.

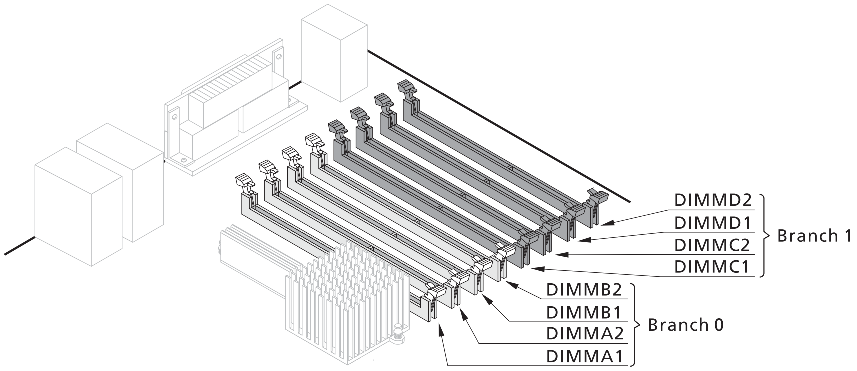
Upgrading the system memory

This section explains the procedures for removing and installing a fully-buffered memory module.

System memory interface

The mainboard has eight DIMM slots divided into two memory branches. Each branch is made up of two channels each, which in turn comprised of two FBD slots.

- Branch 0
    - Channel A - DIMMA1 and DIMMA2
    - Channel B - DIMMB1 and DIMMB2
- Branch 1
    - Channel C - DIMMC1 and DIMMC2
    - Channel D - DIMMD1 and DIMMD2


DIMMD2
DIMMD1
DIMMC2
DIMMC1
Branch 1
DIMMB2
DIMMB1
DIMMA2
DIMMA1
Branch 0

System memory configuration guidelines

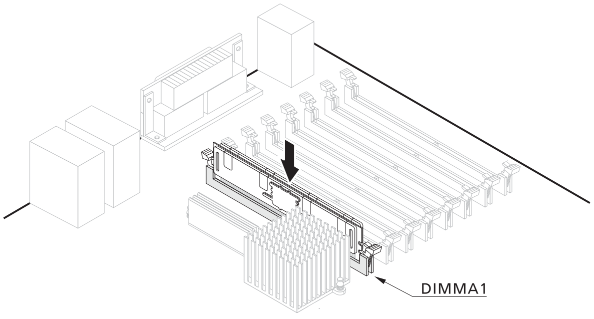
- To ensure data integrity, use only Acer-approved 240-pin, DDR2 667 FBD ECC modules in 512 MB, 1 GB, or 2 GB capacities.
- Use identical modules—same specification for size, speed, and organization.

- Observe the population sequence illustrated in the table below when installing a memory module.

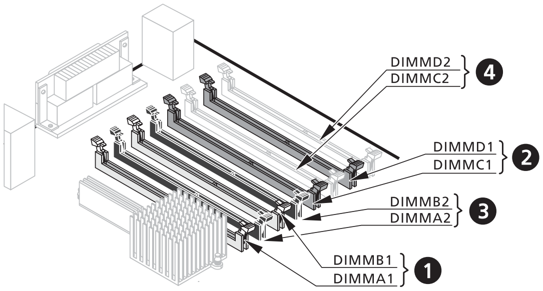
Branch 0				Branch 1			
DIMM A1	**DIMMA2**	**DIMMB 1**	**DIMMB2**	**DIMMC1**	**DIMMC2**	**DIMMD1**	**DIMMD2**
512 MB							
512 MB		512 MB					
512 MB		512 MB		512 MB		512 MB	
512 MB	512 MB	512 MB	512 MB	512 MB		512 MB	
512 MB	512 MB	512 MB	512 MB	512 MB	512 MB	512 MB	512 MB
1 GB							
1 GB		1 GB					
1 GB		1 GB		1 GB		1 GB	
1 GB	1 GB	1 GB	1 GB	1 GB		1 GB	
1 GB	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB
2 GB							
2 GB		2 GB					
2 GB		2 GB		2 GB		2 GB	
2 GB	2 GB	2 GB	2 GB	2 GB		2 GB	
2 GB	2 GB	2 GB	2 GB	2 GB	2 GB	2 GB	2 GB

The installation sequence listed in the above table is illustrated in the following figures.

- In a minimum memory configuration, the FBD should be installed in the DIMMA1 slot.



- Install FBD pair upgrades in the following sequence:
  - First FBD pair: DIMMA1 and DIMMB1 slots
  - Upgrade 1: DIMMC1 and DIMMD1 slots
  - Upgrade 2: DIMMA2 and DIMMB2 slots
  - Upgrade 3: DIMMC2 and DIMMD2 slots



To remove an FBD:

Important: Before removing an FBD, make sure to back up all important system files. Also, note that FBDs should be removed in pairs.

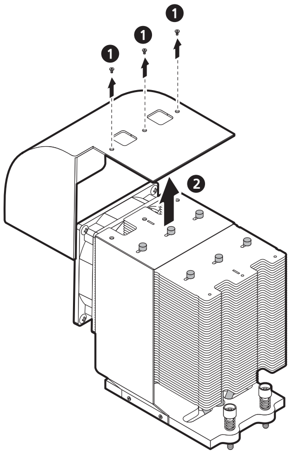
1 Perform the pre-installation instructions described on page 37.

2 Lay the server on its side (components showing).

3 Remove the air duct to access to the FBD slots.

(1) Remove the three screws that secure the air duct.

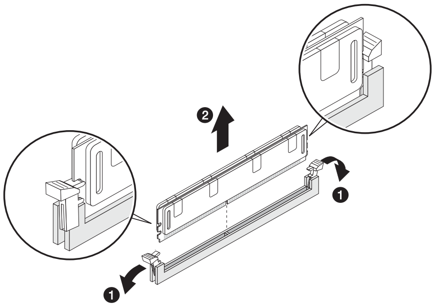
(2) Detach the air duct from the heat sink-fan.



4 Remove the FBD.

   (1) Press the holding clips on both sides of the socket outward to release the DIMM.

   (2) Gently pull the DIMM upward to remove it from the socket.



5 If you intend to install a new FBD, proceed to the next section for related procedure, otherwise reinstall the air duct, then observe the post-installation instructions described on page 38.

To install an FBD:

1 Perform steps 1 through 3 of the previous section.

2 Select an empty FBD slot.

3 If necessary, open the holding clips of the selected FBD slot.

4 Remove the new FBD from its protective packaging, handling it by the edges.

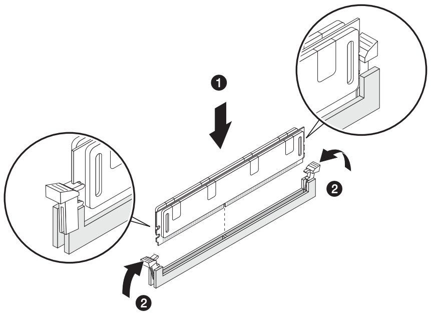
5 Install the FBD.

   (1) Align the FBD so that the notch on the slot fits the keyed edge of the module, then press the module at both ends to seat it fully into the slot.

   If you insert an FBD but it does not fit easily into the slot, you have inserted it incorrectly. Reverse the orientation of the module and insert it again.

(2) Firmly press the holding clips inward to lock the FDB in place.

If the holding clips do not close, the FBD is not properly inserted.



6 Reinstall the air duct.

7 Observe the post-installation instructions described on page 38.

The system automatically detects the amount of memory installed. Run the BIOS setup to view the new value for total system memory and make a note of it.

Installing an expansion card

This section explains how to install an expansion card.

I/O interface

Altos G540 has six PCI bus slots with of three separate bus segments, namely:

- PCI-E 1, PCI-E 4, and PCI-E 5 – PCI Express x8 slots
- PCI-X 2 and PCI-X 3 – 64-bit, 66/100 MHz PCI-X slots
- PCI7 – One 32-bit/33 MHz PCI bus slot

In addition to these six expansion slots, Altos G540 also has one dedicated PCI-X expansion slot for the optional SAS controller board (SODIMM1) slot.

To install an expansion card:

1. Perform the pre-installation instructions described on page 37.
2. If necessary, remove any cables that prevent access to the processor sockets.
3. Locate an empty expansion slot that is compatible with the specification of the card you intend to install.
4. Install the expansion card.
   (1) Press the release latch of the slot cover opposite the selected expansion slot.
   (2) Pull out the slot cover and store it for reassembly later.

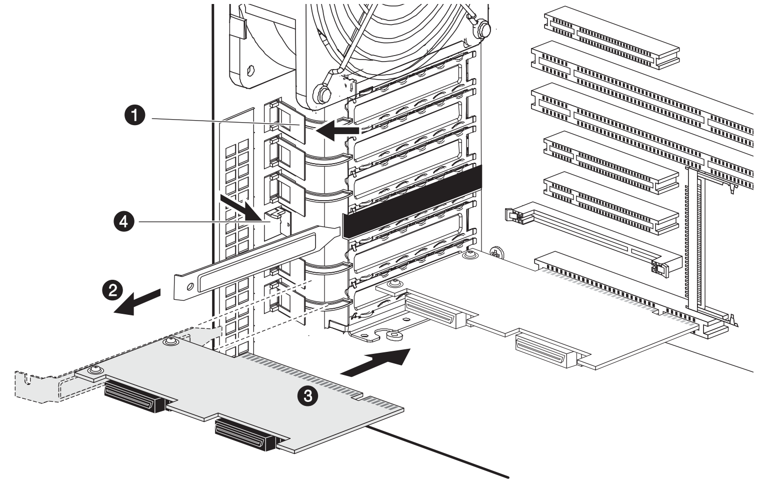
Caution: Do not discard the slot cover. If the expansion card is removed in the future, the slot cover must be reinstalled to maintain proper system cooling.

Remove the expansion card from its protective packaging, handling it by the edges.

(3) Insert the card into the selected slot.

Make sure that the card is properly seated.

(4) Press the release latch to secure the card in place.



(5) Connect the necessary cables to the expansion card as required.

5 Observe the post-installation instructions described on page 38.

When you turn on the system, the BIOS setup automatically detects and assigns resources to the new device (applicable only to Plug-and-Play expansion cards).

Installing the SAS controller board

If you intend to install a SAS hard drive, you need to first install the LSI 1068 SAS controller board option.

To install the SAS controller board:

1 Perform the pre-installation instructions described on page 37.

2 Locate the SODIMM slot. If necessary, remove any cables that prevent access to it.

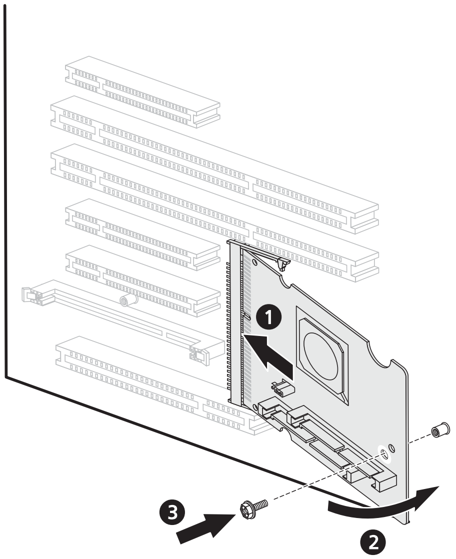
3 Remove the SAS controller board from its protective packaging, handling it by the edges.

4 Install the SAS controller board.

    (1) Align then insert the gold-lined edge of the board into the SODIMM slot.

    (2) Firmly press the board down to seat it properly.

    (3) Secure the board with the one screw.



5 Observe the post-installation instructions described on page 38.

When you turn on the system, the BIOS setup automatically detects and assigns resources to the new device.

For information on how to install a SAS HDD, go to page 45.

Installing the BMC module

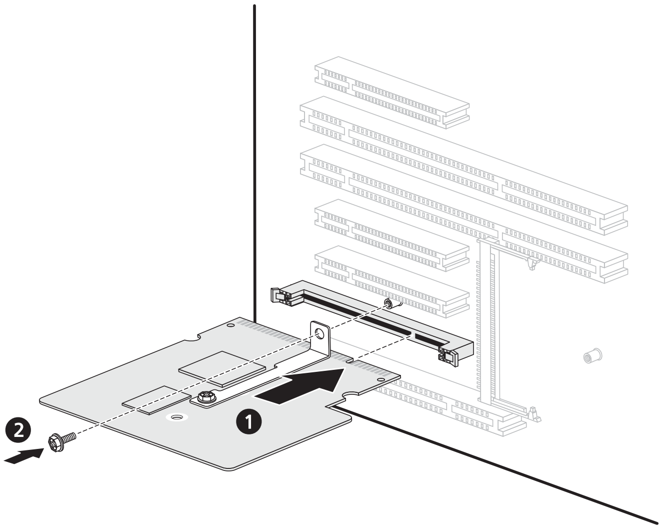
The optional BMC module allows system administrators to manage the Altos G540 system remotely over a network.

To install the BMC module:

1. Perform the pre-installation instructions described on page 37.
2. Locate the IPMB_6 slot. If necessary, remove any boards or cables that prevent access to it.
3. If necessary, open the holding clips of the IPMB_6 slot.
4. Remove the BMC module from its protective packaging, handling it by the edges.
5. Install the BMC module.
   (1) Align the module so that the notch on the IPMB_6 slot fits the keyed edge of the module, then press the module at both ends to seat it fully into the slot.

   When the module is properly installed, the holding clips will automatically lock in place.

   (2) Secure the module with the one screw.



6. Observe the post-installation instructions described on page 38.

Installing the ARMC/3 module

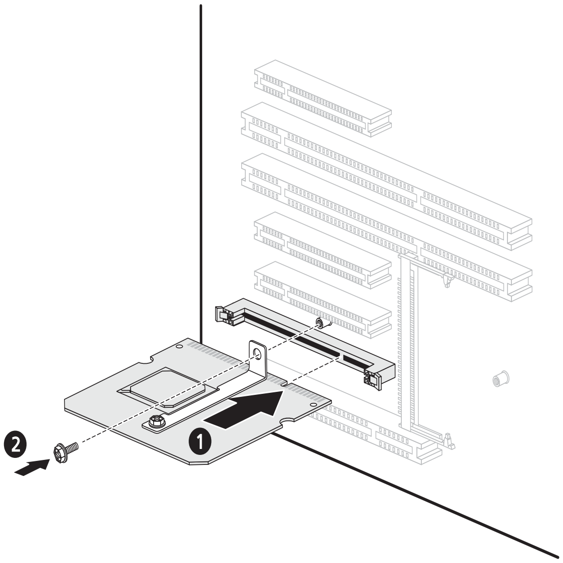
Remote system management just got easier with the new ARMC/3 module. The module provides high performance KVM (keyboard-video-mouse) redirection and features a dedicated NIC port for faster network access.

To install the ARMC/3 module:

1. Perform the pre-installation instructions described on page 37.
2. Locate the IPMB_6 slot. If necessary, remove any boards or cables that prevent access to it.
3. If necessary, open the holding clips of the IPMB_6 slot.
4. Remove the ARMC/3 module from its protective packaging, handling it by the edges.
5. Install the ARMC/3 module.
   (1) Align the module so that the notch on the IPMB_6 slot fits the keyed edge of the module, then press the module at both ends to seat it fully into the slot.

   When the module is properly installed, the holding clips will automatically lock in place.

   (2) Secure the module with the one screw.



6 Install the dedicated NIC port card.

(1) Press the release latch of the slot cover opposite the IPMB_6 slot.

The release latch highlighted in the figure below is for illustration purpose only.

(2) Pull out the slot cover and store it for reassembly later.

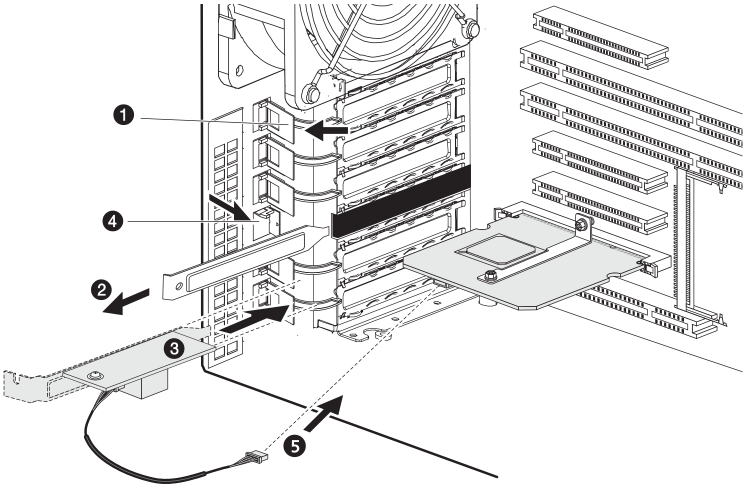
Caution: Do not discard the slot cover. If the expansion card is removed in the future, the slot cover must be reinstalled to maintain proper system cooling.

(3) Insert the dedicated NIC port card into the selected slot.

Make sure that the card is properly seated.

(4) Press the release latch to secure the card in place.

(5) Connect the card's LAN cable to the LAN1 connector of the ARMC/3 module.



7 Observe the post-installation instructions described on page 38.

Installing a redundant power supply module

The Altos G540 supports two 610-watts hot-swap power supply modules. The system ships out with only one power supply module installed. You have the option to install a second module to provide the system with a redundant power source. A redundant power configuration enables a fully-configured system to continue running even if one of the power supply module fails.

WARNING! To reduce the risk of personal injury or damage to the equipment, the installation of power supply modules should be referred to individuals who are qualified to service server systems and are trained to deal with equipment capable of generating hazardous energy levels.

WARNING! To reduce the risk of personal injury from hot surfaces, observe the thermal labels on each power supply modules. You can also consider wearing protective gloves.

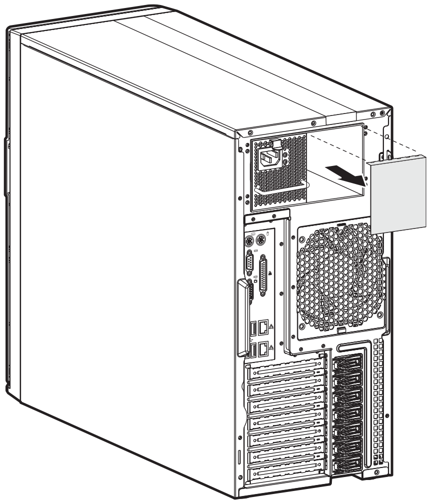
WARNING! To reduce the risk of personal injury from electric shock hazards, do not open the power supply module. There are no serviceable parts inside the module.

Caution! Electrostatic discharge can damage electronic components. Make sure that you are properly grounded before handling a power supply module.

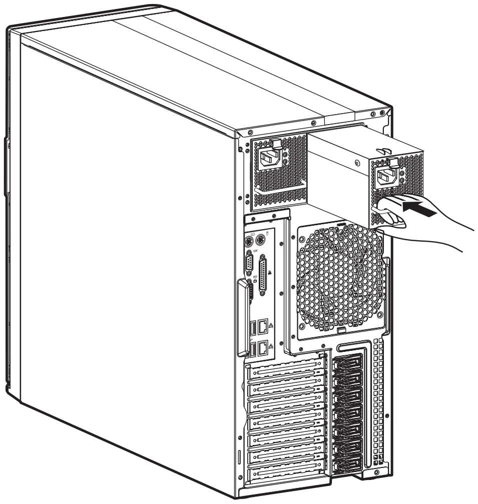
To install a hot-swap power supply module:

1 Detach the cover from the chassis.

Keep the cover for future reassembly.



2 Slide the module into the empty bay until you feel resistance, and it locks into place.



3 Verify that the power status indicators on the main power supply and on the newly installed redundant power supply are illuminated green.

4 System BIOS

This chapter gives information about the system BIOS and discusses how to configure the system by changing the settings of the BIOS parameters.

BIOS overview

BIOS setup is a hardware configuration program built into the system's Basic Input/Output System (BIOS). Since most systems are already properly configured and optimized, there is no need to run this utility. You will need to run this utility under the following conditions.

- When changing the system configuration settings
- When redefining the communication ports to prevent any conflicts
- When modifying the power management configuration
- When changing the password or making other changes to the security setup
- When a configuration error is detected by the system and you are prompted ("Run Setup" message) to make changes to the BIOS setup

Note: If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

BIOS setup loads the configuration values in a battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM which allows configuration data to be retained when power is turned off.

Before you run the *Phoenix*BIOS Setup Utility, make sure that you have saved all open files. The system reboots immediately after you close the Setup.

Note: *Phoenix*BIOS Setup Utility will be simply referred to as "Setup" or "Setup utility" in this guide.

The screenshots used in this guide display default system values. These values may not be the same those found in your system.

Entering BIOS setup

1. Turn on the server and the monitor.

   If the server is already turned on, close all open applications, then restart the server.

2. During POST, press **F2**.

   If you fail to press **F2** before POST is completed, you will need to restart the server.

   The Setup Main menu will be displayed showing the Setup's menu bar. Use the left and right arrow keys to move between selections on the menu bar.

BIOS setup primary menus

The tabs on the Setup menu bar correspond to the six primary BIOS Setup menus, namely:

- Main
- Advanced
- Security
- Server
- Boot
- Exit

In the descriptive table following each of the menu screenshots, settings in **boldface** are the default and suggested settings.

BIOS setup navigation keys

Use the following keys to move around the Setup utility.

- **Left** and **Right** arrow keys – Move between selections on the menu bar.
- **Up** and **Down** arrow keys – Move the cursor to the field you want.
- **PgUp** and **PgDn keys** – Move the cursor to the previous and next page of a multiple page menu.
- **Home** – Move the cursor to the first page of a multiple page menu.
- **End** – Move the cursor to the last page of a multiple page menu.
- **+** and **-** keys – Select a value for the currently selected field (only if it is user-configurable). Press these keys repeatedly to display each possible entry, or the **Enter** key to choose from a pop-up menu.

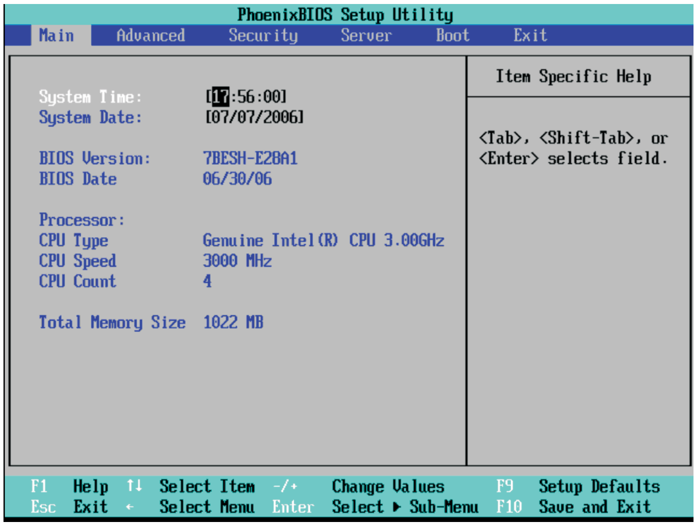
  Note: Grayed-out fields are not user-configurable.

- **Enter** key – Display a submenu screen.

  Note: Availability of submenu screen is indicated by a (>).

- **Esc** – If you press this key:
  - On one of the primary menu screens, the Exit menu displays.
  - On a submenu screen, the previous screen displays.
  - When you are making selections from a pop-up menu, closes the pop-up without making a selection.
- **F1** – Display the BIOS setup General Help panel.
- **F9** – Press to load default system values.
- **F10** – Save changes made the Setup and close the utility.

Main menu


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
↔ Select Menu
Enter Select ▸ Sub-Menu
F10 Save and Exit

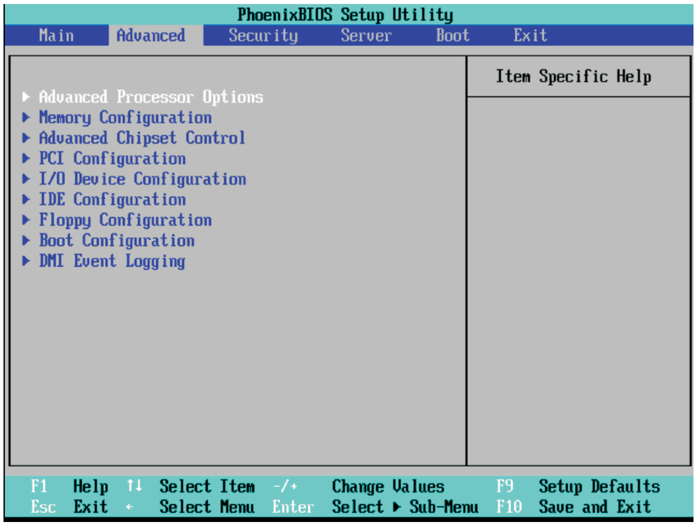
```
System Time:       [17:56:00]
System Date:       [07/07/2006]

BIOS Version:      7BESH-E28A1
BIOS Date          06/30/06

Processor:
CPU Type           Genuine Intel(R) CPU 3.00GHz
CPU Speed          3000 MHz
CPU Count          4

Total Memory Size  1022 MB
```

<Tab>, <Shift-Tab>, or <Enter> selects field.

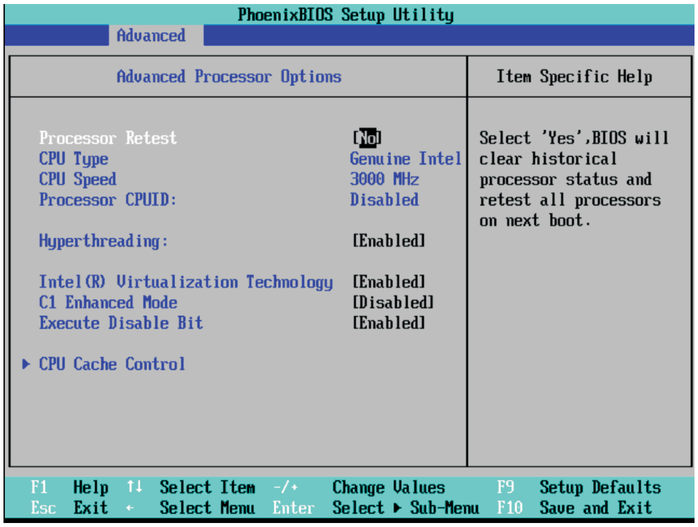
Parameter	Description
System Time	Set the system time following the hour-minute-second format.
System Date	Set the date following the weekday-month-day-year format.
BIOS Version	Version number of the BIOS setup utility
BIOS Date	Date when the BIOS setup utility was created
Processor CPU Type CPU Speed CPU Count	Technical specifications for the installed processor
Total Memory Size	Total size of system memory detected during POST

Advanced menu

The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press **Enter** to access the related submenu screen.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
▶ Advanced Processor Options
▶ Memory Configuration
▶ Advanced Chipset Control
▶ PCI Configuration
▶ I/O Device Configuration
▶ IDE Configuration
▶ Floppy Configuration
▶ Boot Configuration
▶ DMI Event Logging
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
←→ Select Menu
Enter Select ▶ Sub-Menu
F10 Save and Exit

Advanced Processor Options


PhoenixBIOS Setup Utility
Advanced
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Advanced Processor Options

Processor Retest [No]
CPU Type Genuine Intel
CPU Speed 3000 MHz
Processor CPUID: Disabled

Hyperthreading: [Enabled]

Intel(R) Virtualization Technology [Enabled]
C1 Enhanced Mode [Disabled]
Execute Disable Bit [Enabled]

▸ CPU Cache Control

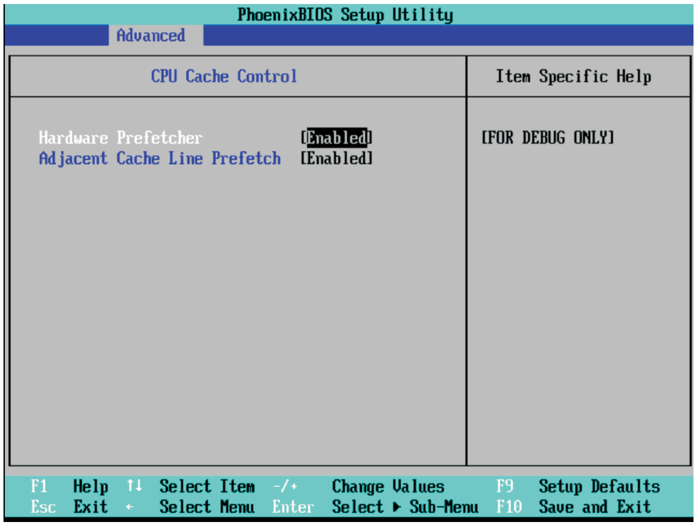
Item Specific Help

Select 'Yes',BIOS will clear historical processor status and retest all processors on next boot.

Parameter	**Description**	**Option**
Processor Retest	Select whether to delete the historical processor data log. Processor(s) will be retested on the next boot-up.	Yes **No**
CPU Type	Processor model name	
CPU Speed	The processor speed is the speed at which a microprocessor executes instructions. Clock speeds are expressed in megahertz (MHz), with 1 MHz being equal to 1 million cycles per second. The faster the clock, the more instructions the CPU can execute per second.	
Processor CPUID	Processor ID number	
Processor L2 Cache	Processor second-level cache size detected during POST **Note:** This field is not shown on the above screenshot.	
Hyperthreading	Select whether to enable the Intel Hyper-Threading (HT) Technology function. HT enables the host operating system to view a single physical processor to appear as two logical processors. This can boost performance in OS and applications that are HT-compliant.	**Enabled** Disabled

Parameter	Description	Option
Intel Virtualization Technology	Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.	**Enabled** Disabled
C1 Enhanced Mode	Select whether to enable the C1 Enhanced mode for the processor. If enabled, all logical processors in a physical processor will run in a C1 state.	**Enabled** Disabled
CPU Cache Control	Set which processor cache functions to run during system debugging. Press **Enter** to access the related submenu.	

CPU Cache Control

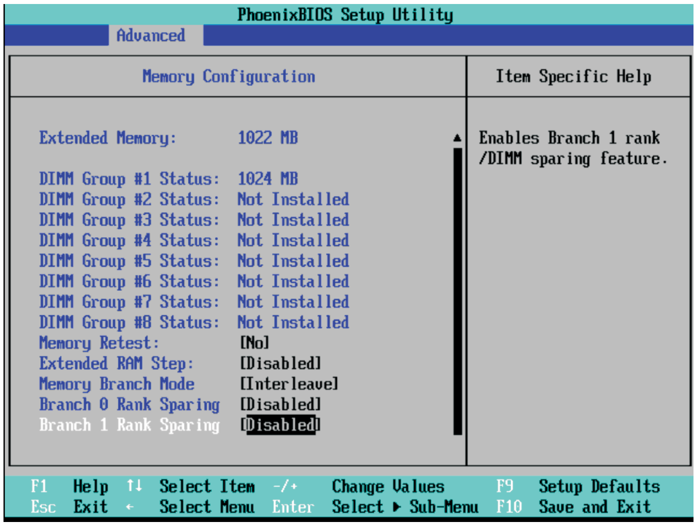

PhoenixBIOS Setup Utility
Advanced
CPU Cache Control
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Hardware Prefetcher [Enabled]
Adjacent Cache Line Prefetch [Enabled]

[FOR DEBUG ONLY]

Parameter	Description	Option
Hardware Prefetcher	Select whether to enable the speculative prefetch unit of the processor.	**Enabled** Disabled
Adjacent Cache Line Prefetch	When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched.	**Enabled** Disabled

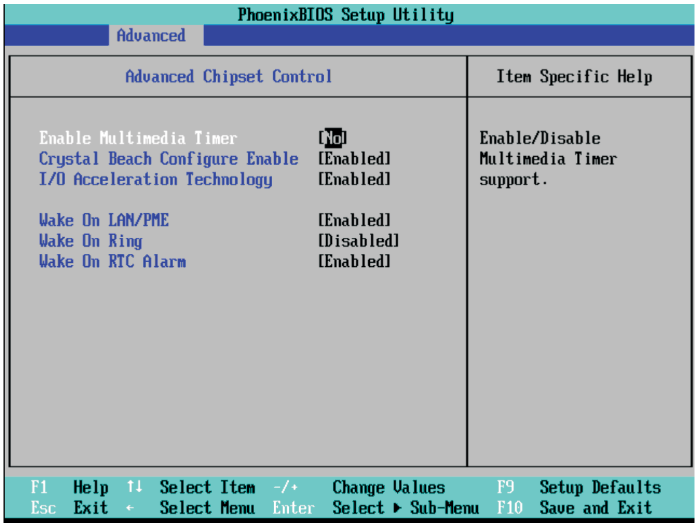
Memory Configuration



```
                      PhoenixBIOS Setup Utility
        Advanced
            Memory Configuration                    Item Specific Help

   Extended Memory:        1022 MB                  Enables Branch 1 rank
                                                    /DIMM sparing feature.
   DIMM Group #1 Status:   1024 MB
   DIMM Group #2 Status:   Not Installed
   DIMM Group #3 Status:   Not Installed
   DIMM Group #4 Status:   Not Installed
   DIMM Group #5 Status:   Not Installed
   DIMM Group #6 Status:   Not Installed
   DIMM Group #7 Status:   Not Installed
   DIMM Group #8 Status:   Not Installed
   Memory Retest:          [No]
   Extended RAM Step:      [Disabled]
   Memory Branch Mode      [Interleave]
   Branch 0 Rank Sparing   [Disabled]
   Branch 1 Rank Sparing   [Disabled]

 F1   Help  ↑↓  Select Item  -/+    Change Values        F9   Setup Defaults
 Esc  Exit  ↔   Select Menu  Enter  Select ▶ Sub-Menu    F10  Save and Exit
```

Parameter	Description	Option
Extended Memory	Total size of extended memory detected during POST	
DIMM Group #1 - 8 Status	The size of memory installed on each of the FBD slots.	
Memory Retest	Select whether to delete the historical memory data log. System memory will be retested on the next boot-up.	Yes **No**
Extend RAM Setup	Select whether to enable extended memory testing during boot-up.	Enabled **Disabled**
Memory Branch Mode	Select the type of memory branch mode to employ.	Sequential **Interleave** Mirror Single Channel 0
Branch 0/1 Rank Sparing	Select whether to enable sparing for the selected memory branch.	Enabled **Disabled**

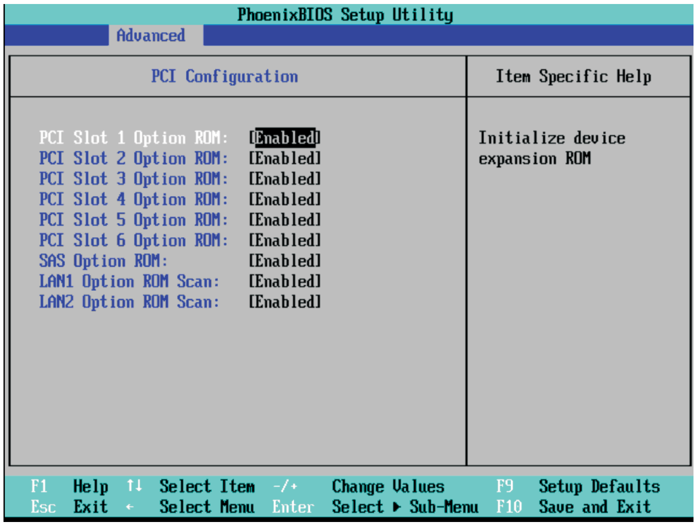
Advanced Chipset Control



```
                     PhoenixBIOS Setup Utility
          Advanced
         Advanced Chipset Control                   Item Specific Help

  Enable Multimedia Timer         [No]           Enable/Disable
  Crystal Beach Configure Enable  [Enabled]      Multimedia Timer
  I/O Acceleration Technology     [Enabled]      support.

  Wake On LAN/PME                 [Enabled]
  Wake On Ring                    [Disabled]
  Wake On RTC Alarm               [Enabled]

F1   Help  ↑↓ Select Item  -/+   Change Values      F9   Setup Defaults
Esc  Exit  ←  Select Menu  Enter Select ▸ Sub-Menu  F10  Save and Exit
```

Parameter	**Description**	**Option**
Advanced Multimedia Timer	Select whether to enable the system multimedia timer.	Yes **No**
Crystal Beach Configure Enable	Select whether to enable configuration /memory mapped access to the Crystal Beach Configuration space.	**Enabled** Disabled
I/O Acceleration Technology	Select whether to enable the Intel Acceleration Technology (I/OAT) function. It addresses all segments of the server I/O bottleneck problem using TCP/IP and without requiring any modification of existing or future applications.	**Enabled** Disabled
Wake On LAN/ PME	Select whether to wake up the system when a LAN or PME event is detected.	**Enabled** Disabled
Wake On Ring	Select whether to wake up the system when an incoming call is detected on the modem.	**Enabled** Disabled
Wake On RTC Alarm	Select whether to wake up the system when an RTC alarm is detected.	**Enabled** Disabled

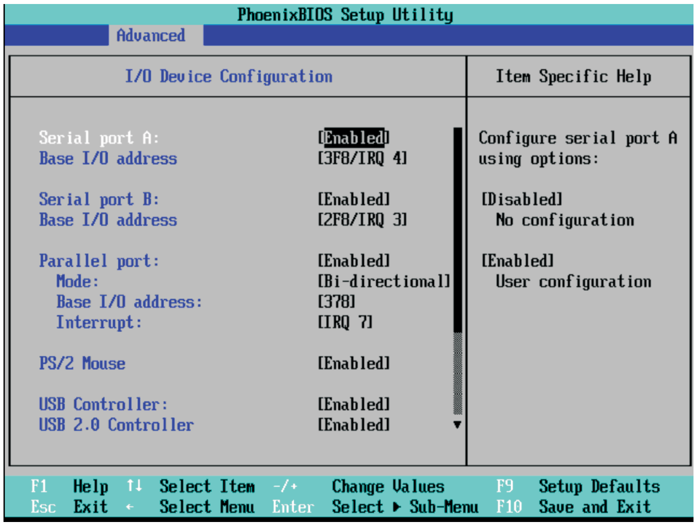
PCI Configuration



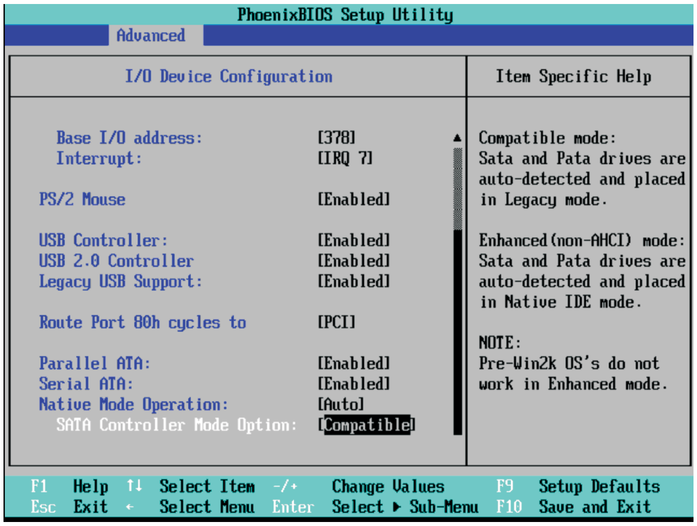
```
                     PhoenixBIOS Setup Utility
            Advanced
            PCI Configuration                     Item Specific Help

   PCI Slot 1 Option ROM:    [Enabled]         Initialize device
   PCI Slot 2 Option ROM:    [Enabled]         expansion ROM
   PCI Slot 3 Option ROM:    [Enabled]
   PCI Slot 4 Option ROM:    [Enabled]
   PCI Slot 5 Option ROM:    [Enabled]
   PCI Slot 6 Option ROM:    [Enabled]
   SAS Option ROM:           [Enabled]
   LAN1 Option ROM Scan:     [Enabled]
   LAN2 Option ROM Scan:     [Enabled]

F1   Help  ↑↓  Select Item  -/+    Change Values      F9   Setup Defaults
Esc  Exit  ←   Select Menu  Enter  Select ▸ Sub-Menu  F10  Save and Exit
```

Parameter	Description	Option
PCI Slot 1 - 6 Option ROM	When enabled, this setting will initialize the device expansion ROM for the related PCI slot.	**Enabled** Disabled
SAS Option ROM	When enabled, this setting will initialize the SAS controller board expansion ROM.	**Enabled** Disabled
LAN 1/2 Option ROM Scan	Select whether to enable the selected onboard LAN device. When enabled, device expansion ROM will be initialized.	**Enabled** Disabled

I/O Device Configuration



```
                     PhoenixBIOS Setup Utility
            Advanced
        I/O Device Configuration                  Item Specific Help

  Serial port A:                  [Enabled]      Configure serial port A
  Base I/O address                [3F8/IRQ 4]    using options:

  Serial port B:                  [Enabled]      [Disabled]
  Base I/O address                [2F8/IRQ 3]      No configuration

  Parallel port:                  [Enabled]      [Enabled]
    Mode:                         [Bi-directional]  User configuration
    Base I/O address:             [378]
    Interrupt:                    [IRQ 7]

  PS/2 Mouse                      [Enabled]

  USB Controller:                 [Enabled]
  USB 2.0 Controller              [Enabled]

 F1   Help  ↑↓  Select Item  -/+    Change Values      F9   Setup Defaults
 Esc  Exit  ↔   Select Menu  Enter  Select ▸ Sub-Menu  F10  Save and Exit
```



```
                     PhoenixBIOS Setup Utility
            Advanced
        I/O Device Configuration                  Item Specific Help

    Base I/O address:             [378]          Compatible mode:
    Interrupt:                    [IRQ 7]        Sata and Pata drives are
                                                 auto-detected and placed
  PS/2 Mouse                      [Enabled]      in Legacy mode.

  USB Controller:                 [Enabled]      Enhanced(non-AHCI) mode:
  USB 2.0 Controller              [Enabled]      Sata and Pata drives are
  Legacy USB Support:             [Enabled]      auto-detected and placed
                                                 in Native IDE mode.
  Route Port 80h cycles to        [PCI]
                                                 NOTE:
  Parallel ATA:                   [Enabled]      Pre-Win2k OS's do not
  Serial ATA:                     [Enabled]      work in Enhanced mode.
  Native Mode Operation:          [Auto]
    SATA Controller Mode Option:  [Compatible]

 F1   Help  ↑↓  Select Item  -/+    Change Values      F9   Setup Defaults
 Esc  Exit  ↔   Select Menu  Enter  Select ▸ Sub-Menu  F10  Save and Exit
```

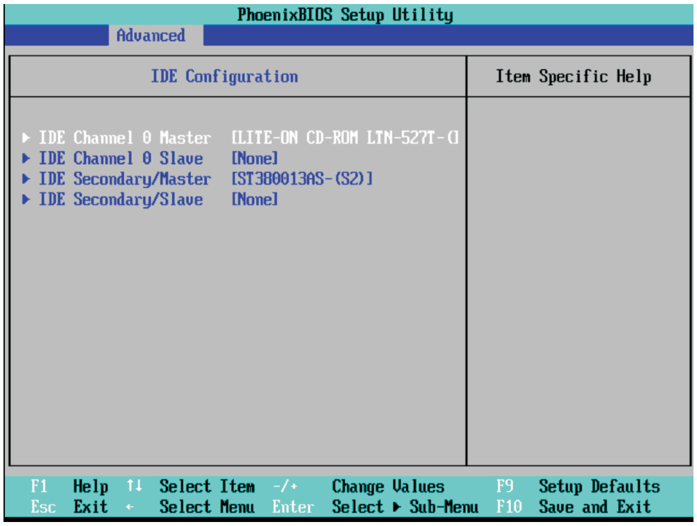
Parameter	Description	Option
Serial Port A/B	When enabled allows you to configure the serial port settings. When set to **Auto** allows the server's BIOS or OS to select a configuration. When set to **Disabled**, displays no configuration for the serial port.	**Enabled** Disabled Auto

Parameter	Description	Option
Base I/O address	Base I/O address and IRQ setting for the selected serial port	**3F8/IRQ4** 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3
Parallel Port	When enabled allows you to configure the parallel port settings.	Enabled **Disabled**
Mode	Sets the operation mode for the parallel port. When set to **Bi-Directional**, allows normal speed operation in a two way mode. When set to **EPP** (Enhanced Parallel Port), allows bi-directional parallel port operation at maximum speed. When set to **ECP** (Extended Capabilities Port), allows the parallel port to operate in a bi-directional mode and at a speed higher than the maximum data transfer rate.	**Output only** Bi-Directional EPP ECP
Base I/O Address	Base I/O address of the parallel port	**378** 278
Interrupt	IRQ setting of the parallel port	**IRQ5** IRQ7
PS/2 Mouse	Enable this parameter if you intend to use a mouse or trackball with a PS/2 interface.	**Enabled** Disabled
USB Controller	Enables or disables the onboard USB controller.	**Enabled** Disabled
USB 2.0 Controller	Enables or disables the onboard USB 2.0 controller.	**Enabled** Disabled
Legacy USB Support	Enables or disables support for legacy USB devices.	**Enabled** Disabled
Route Port 80h Cycles to	Select which bus to set the route port 80h cycles on.	**PCI** LPC

Parameter	Description	Option
Parallel ATA	Select whether to enable support for PATA devices.	**Enabled** Disabled
Serial ATA	Select whether to enable support for SATA devices.	**Enabled** Disabled
Native Mode Operation	Select the native mode for the SATA function.	**Auto** Serial ATA
SATA Controller Mode Option	Select whether to set SATA/PATA devices to legacy (Compatible) or native (Enhanced) mode. Selecting the **Enhanced** mode will display the <u>SATA RAID Enable</u> field. Enable this option to use the onboard SATA RAID controller.	**Compatible** Enhanced

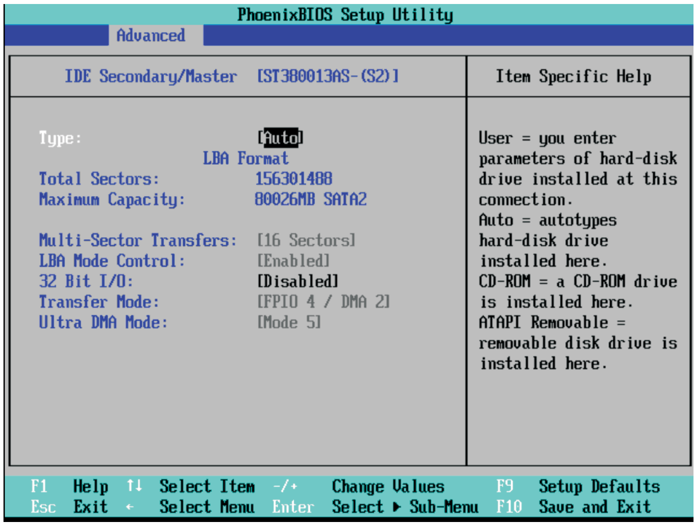
IDE Configuration

The IDE Configuration submenu lets you define the parameter settings related to the system hard drive(s).


PhoenixBIOS Setup Utility
Advanced
IDE Configuration
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

```
▶ IDE Channel 0 Master    [LITE-ON CD-ROM LTN-527T-(]
▶ IDE Channel 0 Slave     [None]
▶ IDE Secondary/Master    [ST380013AS-(S2)]
▶ IDE Secondary/Slave     [None]
```

I/O Channel 0/Secondary Master/Slave



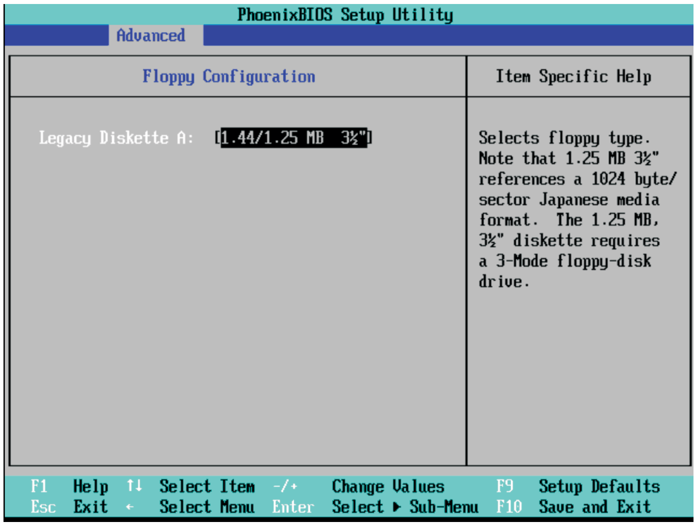
```
                     PhoenixBIOS Setup Utility
          Advanced

   IDE Secondary/Master   [ST380013AS-(S2)]     Item Specific Help

   Type:                      [Auto]            User = you enter
                      LBA Format                parameters of hard-disk
   Total Sectors:             156301488         drive installed at this
   Maximum Capacity:          80026MB SATA2     connection.
                                                Auto = autotypes
   Multi-Sector Transfers:    [16 Sectors]      hard-disk drive
   LBA Mode Control:          [Enabled]         installed here.
   32 Bit I/O:                [Disabled]        CD-ROM = a CD-ROM drive
   Transfer Mode:             [FPIO 4 / DMA 2]  is installed here.
   Ultra DMA Mode:            [Mode 5]          ATAPI Removable =
                                                removable disk drive is
                                                installed here.

 F1   Help  ↑↓  Select Item  -/+    Change Values        F9   Setup Defaults
 Esc  Exit  ←   Select Menu  Enter  Select ► Sub-Menu    F10  Save and Exit
```

Parameter	Description	Option
Type	Selects the drive type.	**Auto** None CD-ROM ATAPI Removable IDE Removable User
Total Sectors	Total number of sectors available in the selected hard drive.	
Maximum Capacity	Maximum capacity of the selected hard drive.	
Multi-Sector Transfers	Set the multi-Sector transfer mode.	**16 Sectors** Disabled 2 Sectors 4 Sectors 8 Sectors
LBA Mode Control	Selects the hard disk drive translation method. For drivers with more than 504 MB, LBA mode is necessary.	**Enabled** Disabled
32-bit I/O	Enables or disables the 32-bit data transfer function	Enabled **Disabled**

Parameter	Description	Option
Transfer Mode	Select a transfer mode to enhance hard disk performance.	**Fast PIO 4** Standard Fast PIO 1 Fast PIO 2 Fast PIO 3 FPIO 3/DMA 1 FPIO 4/DMA 2
Ultra DMA Mode	Selects DMA (Direct Memory Access) mode.	**Mode 6** Disabled Mode 0 Mode 1 Mode 2 Mode 3 Mode 4 Mode 5

Floppy Configuration

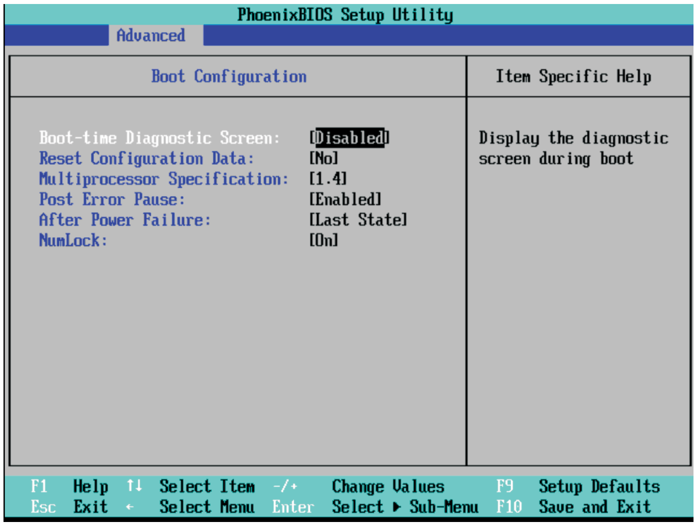
The Floppy Configuration submenu displays the type of floppy disk drive installed in the server.


PhoenixBIOS Setup Utility
Advanced
Floppy Configuration
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
← Select Menu
Enter Select ▶ Sub-Menu
F10 Save and Exit

```
Legacy Diskette A:   [1.44/1.25 MB  3½"]
```

```
Selects floppy type.
Note that 1.25 MB 3½"
references a 1024 byte/
sector Japanese media
format.  The 1.25 MB,
3½" diskette requires
a 3-Mode floppy-disk
drive.
```

Boot Configuration

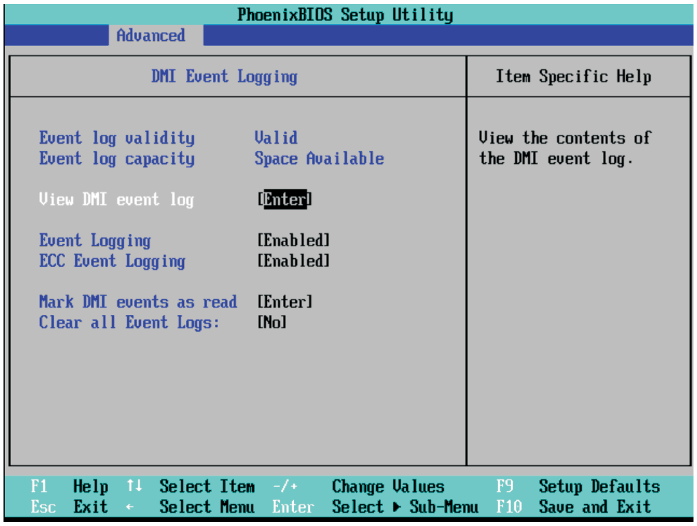


```
                     PhoenixBIOS Setup Utility
             Advanced

             Boot Configuration                    Item Specific Help

   Boot-time Diagnostic Screen:   [Disabled]     Display the diagnostic
   Reset Configuration Data:      [No]           screen during boot
   Multiprocessor Specification:  [1.4]
   Post Error Pause:              [Enabled]
   After Power Failure:           [Last State]
   NumLock:                       [On]

 F1   Help  ↑↓  Select Item  -/+    Change Values      F9   Setup Defaults
 Esc  Exit  ↔   Select Menu  Enter  Select ▸ Sub-Menu  F10  Save and Exit
```

Parameter	Description	Option
Boot-time Diagnostic Screen	Choose whether to display the boot-time diagnostic screen during POST.	Enabled **Disabled**
Reset Configuration Data	Select whether to erase data in the section of memory for ESCD (Extended System Configuration Data) which stores the configuration settings for non-PnP plug-in devices.	Yes **No**
Multiprocessor Specification	Select the multiprocessor (MP) specification revision level. **Note:** Some operating system will require a 1.1 setting for compatibility reasons.	**1.4** 1.1
POST Error Pause	Select whether to pause POST when a boot-up error is detected.	**Enabled** Disabled

Parameter	Description	Option
After Power Failure	Defines the power state to resume to after a system shutdown that is due to an interruption in AC power. When set to **Last State**, the system will return to the active power state prior to shutdown. When set to **Stay Off**, the system remains off after power shutdown. When set to **Power On**, the system will be turned on from a power failure.	**Last State** Stay Off Power On
NumLock	Select the NumLock behavior during boot-up.	**On** Off

DMI Event Logging



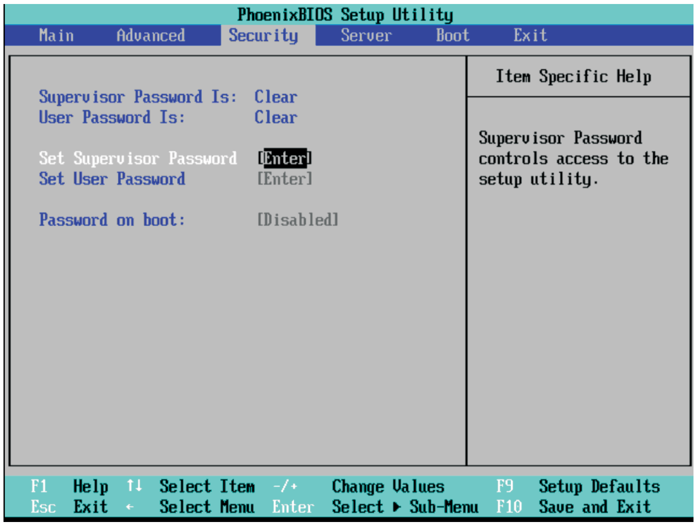
```
                    PhoenixBIOS Setup Utility
        Advanced
            DMI Event Logging                    Item Specific Help

   Event log validity     Valid                  View the contents of
   Event log capacity     Space Available        the DMI event log.

   View DMI event log     [Enter]

   Event Logging          [Enabled]
   ECC Event Logging      [Enabled]

   Mark DMI events as read  [Enter]
   Clear all Event Logs:    [No]

 F1   Help  ↑↓  Select Item  -/+    Change Values       F9   Setup Defaults
 Esc  Exit  ←   Select Menu  Enter  Select ▸ Sub-Menu   F10  Save and Exit
```

Parameter	Description	Option
Event Log Validity	Indicates the validity of the DMI event log.	
Event Log Capacity	Displays the space capacity allotted for the DMI event log.	

Parameter	Description	Option
View DMI Event Log	Press **Enter** to view the DMI (Desktop Management Interface) event log. To return to the DMI Event Logging submenu, click **Continue** in the Event Log window.	
Event Logging	Select whether to allow logging of all DMI events.	**Enabled** Disabled
ECC Event Logging	Select whether to allow logging of ECC events.	**Enabled** Disabled
Mark DMI Events as Read	Press **Enter** to view the DMI event log, then select an log entry to mark as read.	
Clear All Event Logs	Select whether to delete all DMI event log entries during the next system start-up.	Yes **No**

Security menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
← Select Menu
Enter Select ▶ Sub-Menu
F10 Save and Exit

Supervisor Password Is: Clear
User Password Is: Clear

Set Supervisor Password [Enter]
Set User Password [Enter]

Password on boot: [Disabled]

Supervisor Password controls access to the setup utility.

There are three types of passwords that you can set:

- Supervisor password

  Entering this password will allow the user to access and change all settings in the Setup Utility.

- User password

  Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a supervisor password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

- Power-on password

  When the Password on Boot field is enabled, a password will be required to boot up the server. To enable or disable this field, a supervisor password must first be set.

Parameter	Description	Option
Supervisor Password Is	This parameter indicates whether a supervisor password has been assigned.	Clear Enabled
User Password Is	This parameter indicates whether a user password has been assigned.	Clear Enabled
Set Supervisor Password	Press **Enter** to configure the supervisor password.	
Set User Password	Press **Enter** to configure the user password.	
Password On Boot	Select **Enabled** to activate security check during POST.	**Disabled** Enabled

Setting a system password

1. Use the up/down keys to select a password parameter (Set Supervisor Password or Set User Password), then press **Enter**.

   A password box will appear.

2. Type a password then press **Enter**.

   The password may consist of up to six alphanumeric characters (A-Z, a-z, 0-9).

3. Retype the password to verify the first entry then press **Enter** again.
4. Press **F10**.
5. Select **Yes** to save the new password and close the Setup Utility.

Changing a system password

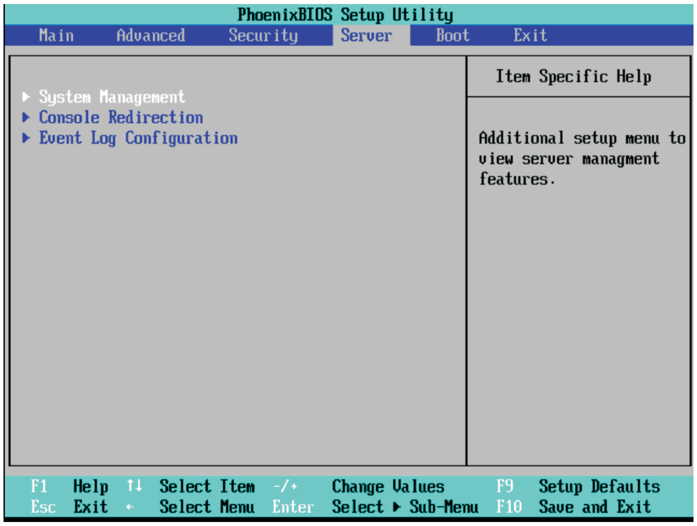
1. Use the up/down keys to select a password parameter (Set Supervisor Password or Set User Password), then press **Enter**.
2. Type the original password then press **Enter**.
3. Type a new password then press **Enter**.
4. Retype the password to verify the first entry then press **Enter** again.
5. Press **F10**.
6. Select **Yes** to save the modified password and close the Setup Utility.

Removing a system password

1. Use the up/down keys to select a password parameter (Set Supervisor Password or Set User Password), then press **Enter**.
2. Enter the current password then press **Enter**.
3. Press **Enter** twice without entering anything in the new and confirm password fields.

   After doing this, the system automatically sets the related password parameter to **Clear**.

Server menu

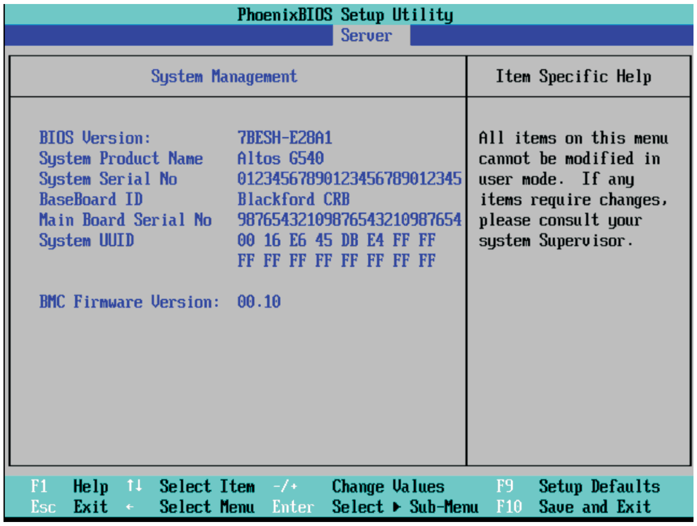

PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
▸ System Management
▸ Console Redirection
▸ Event Log Configuration
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
↔ Select Menu
Enter Select ▸ Sub-Menu
F10 Save and Exit

Additional setup menu to view server managment features.

Parameter	Description
System Management	Displays basic system ID information, as well as BIOS and BMC firmware versions. Press **Enter** to access the related submenu.
Console Redirection	Displays console redirection-related settings. Press **Enter** to access the related submenu.
Event Log Configuration	Displays DMI event log-related settings. Press **Enter** to access the related submenu.

System Management

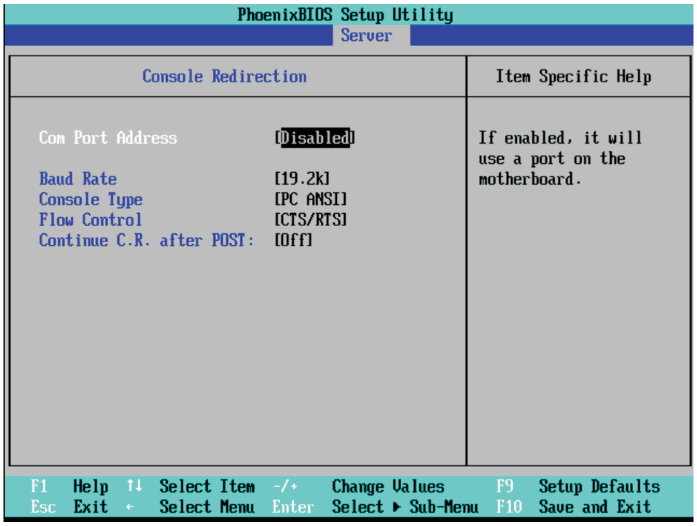
The System Management submenu is a simple display page for basic system ID information, as well as BIOS and BMC firmware versions. Items on this window are non-configurable.


PhoenixBIOS Setup Utility
Server
System Management
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

```
BIOS Version:           7BESH-E28A1
System Product Name     Altos G540
System Serial No        01234567890123456789012345
BaseBoard ID            Blackford CRB
Main Board Serial No    98765432109876543210987654
System UUID             00 16 E6 45 DB E4 FF FF
                        FF FF FF FF FF FF FF FF

BMC Firmware Version:   00.10
```

All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.

Console Redirection

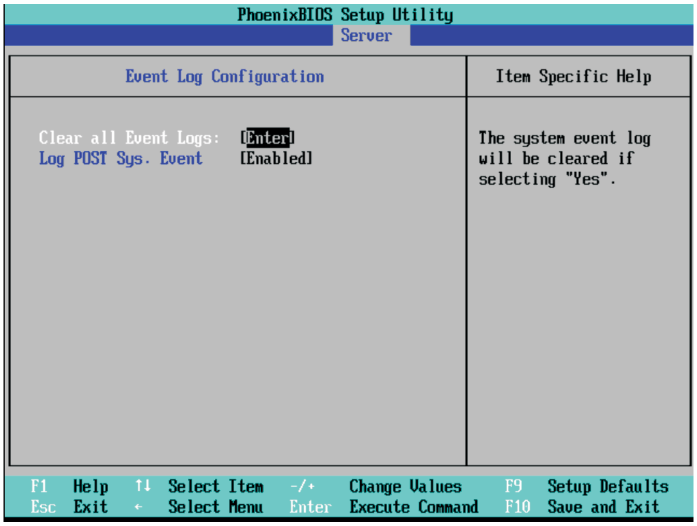

PhoenixBIOS Setup Utility
Server
Console Redirection
Item Specific Help
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

```
Com Port Address           [Disabled]

Baud Rate                  [19.2k]
Console Type               [PC ANSI]
Flow Control               [CTS/RTS]
Continue C.R. after POST:  [Off]
```

If enabled, it will use a port on the motherboard.

Parameter	Description	Option
COM Port Address	Select whether to enable console redirection. Console redirection enables users to manage the system from a remote location.	Onboard COM A **Disabled**
Baud Rate	Select the baud rate for console redirection.	300 1200 2400 9600 **19.2K** 38.4K 57.6K 115.2K
Console Type	Select a terminal type to be used for console redirection.	VT100, VT100 8bit **PC-ANSI 7bit** VT100+ VT-UTF8
Flow Control	Assign control for the console redirection flow.	None XON/OFF **CTS/RTS**
Continue C.R. After POST	Select whether to enable console redirection after POST.	On **Off**

Event Log Configuration


PhoenixBIOS Setup Utility
Server
Event Log Configuration
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
↔ Select Menu
Enter Execute Command
F10 Save and Exit

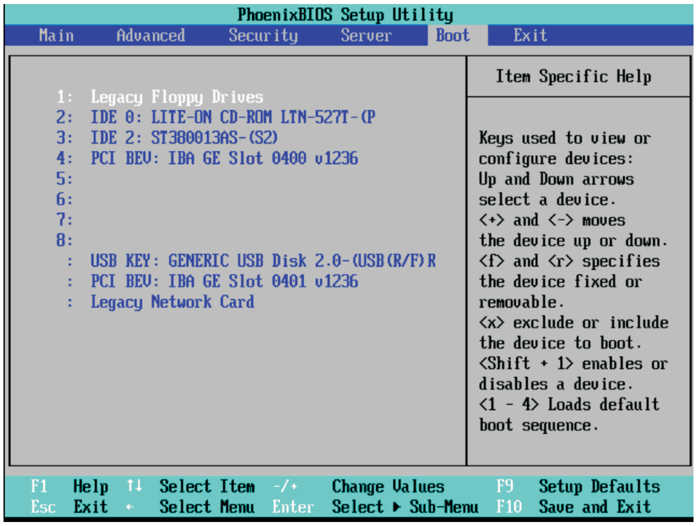
Clear all Event Logs: [Enter]
Log POST Sys. Event [Enabled]

The system event log will be cleared if selecting "Yes".

Parameter	Description	Option
Clear All Event Logs	Press **Enter** then select whether to clear all entries in the system event log.	
Log POST Sys. Event	Select whether to enable the BIOS event log to be integrated in the system event log.	**Enabled** Disabled

Boot menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the drive(s) specified is not bootable.



```
                         PhoenixBIOS Setup Utility
  Main      Advanced     Security     Server     Boot      Exit

                                                  Item Specific Help

     1:  Legacy Floppy Drives
     2:  IDE 0: LITE-ON CD-ROM LTN-527T-(P
     3:  IDE 2: ST380013AS-(S2)                  Keys used to view or
     4:  PCI BEV: IBA GE Slot 0400 v1236         configure devices:
     5:                                          Up and Down arrows
     6:                                          select a device.
     7:                                          <+> and <-> moves
     8:                                          the device up or down.
      :  USB KEY: GENERIC USB Disk 2.0-(USB(R/F)R  <f> and <r> specifies
      :  PCI BEV: IBA GE Slot 0401 v1236         the device fixed or
      :  Legacy Network Card                     removable.
                                                 <x> exclude or include
                                                 the device to boot.
                                                 <Shift + 1> enables or
                                                 disables a device.
                                                 <1 - 4> Loads default
                                                 boot sequence.

  F1   Help  ↑↓  Select Item  -/+    Change Values        F9   Setup Defaults
  Esc  Exit  ←   Select Menu  Enter  Select ▸ Sub-Menu    F10  Save and Exit
```

By default, the server searches for boot devices in the following order:

1 Floppy disk drive

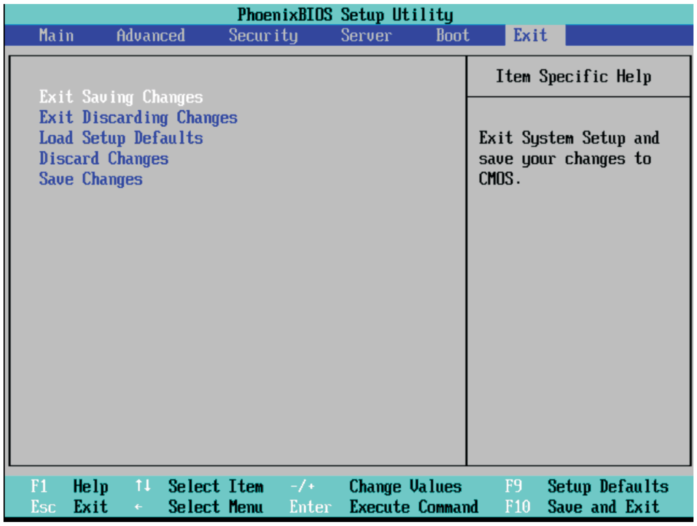
2 Optical disc drive

3 Removable device

4 Hard drive

Exit menu

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Discard Changes
Save Changes
Item Specific Help
F1 Help
↑↓ Select Item
-/+ Change Values
F9 Setup Defaults
Esc Exit
↔ Select Menu
Enter Execute Command
F10 Save and Exit

Exit System Setup and save your changes to CMOS.

Parameter	Description
Exit Saving Changes	Saves changes made and close the BIOS setup.
Exit Discarding Changes	Discards changes made and close the BIOS setup.
Load Setup Defaults	Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.
Discard Changes	Discards all changes made in the BIOS setup.
Save Changes	Saves changes made in the BIOS setup.

5 System troubleshooting

This chapter provides possible solutions for specific problems. If you cannot correct the problem, contact your local Acer representative or authorized dealer for assistance.

Resetting the system

Before going through in-depth troubleshooting, attempt first to reset the system using one of the methods below.

Perform	Purpose	To do this
Soft boot reset	To clear the system memory and reload the operating system.	Press Ctrl+Alt+Del
Cold boot reset	To clear the system memory, restart POST, and reload the operating system. This will halt power to all peripherals.	Press the system power button off and then on.

Initial system startup problems

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less possible cause. If the problem you are experiencing is with a specific application, see the "There is problem with the software program" section on page 108.

Initial troubleshooting checklist

Use the checklist below to eliminate the possible cause for the problem you're encountering.

- AC power is available at the wall outlet?
- Is the power supply module properly installed?
- Is the system power cord properly plugged into the power supply module socket? and connected to a NEMA 5-15R outlet for 100-120 V or a NEMA 6-15R outlet for 200-240 V?
- Are all peripheral cables correctly connected and secured?
- Did you press the system power button to turn the server on (power on indicator should be lit green)?
- Are all device drivers properly installed?
- Is hard disk drive(s) properly formatted and configured?
- Are the BIOS configuration settings in the BIOS setup utility correct?
- Is the operating system properly loaded?

  Refer to the operating system documentation.
- Are all hardware components compliant with the tested components lists?
- Are all internal cables correctly connected and secured?
- Are the processors fully seated in their mainboard sockets?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all add-in expansion cards fully seated in their mainboard slots?
- Are all system jumpers correctly set?
- Are all switch settings on add-in boards and peripheral devices correct?

  To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts (e.g., two add-in boards sharing the same interrupt.

Hardware diagnostic testing

This section provides a detailed approach to identifying a hardware problem and its cause.

Checking the boot-up status

Caution: Before disconnecting any peripheral cables from the server, turn off the system and any peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral device.

1. Turn off the system and all external peripheral devices.
2. Disconnect all peripheral devices from the system, except for the keyboard and the display monitor.
3. Make sure the system power cord is plugged into a properly grounded AC outlet and in the power supply module cord socket.
4. Make sure the display monitor and keyboard are correctly connected to the system.
5. Turn on the display monitor.
6. Set the display brightness and contrast controls to at least two thirds of their maximum range.

   Refer the documentation that came with your display monitor.
7. If the operating system normally loads from the hard drive, make sure there is no diskette in floppy drive and no disc in the DVD-ROM drive.
8. If the power indicator is lit, attempt to boot from a floppy diskette or from a disc.
9. Turn on the system.

   If the power indicator did not light up, see “Power indicator does not light” on page 106.

Verifying the condition of the storage devices

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity indicator should turn on green briefly. Check the activity indicators for the hard drive(s), DVD-ROM drive, floppy drive, and any other 5.25-inch device you may have installed.

If any of these indicators fail to light up, refer to related problems listed in the "Specific problems and corrective actions" section.

Confirming loading of the operating system

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see "No characters appear the display monitor" on page 109.

Specific problems and corrective actions

Listed below are specific problems that may arise during the use of your server and their possible solutions.

Power indicator does not light.

Do the following:

- Make sure the power supply module is properly installed.
- Make sure the power cord is connected correctly.
- Make sure that the wall outlet has power. Test it by plugging another device.
- Make sure the power indicator on the front panel is lit up green.
- Remove all add-in cares and see if the system boots.

  If reboot is successful, install the cards back in one at a time with a reboot between each addition to determine if one of them is causing the problem.
- Make sure that you have properly installed system compliant memory modules, and that there populated according to the system guidelines.
- Make sure that you have installed system compliant processors, and that there populated according to the system guidelines.

FDD activity indicator does not light.

Do the following:

- Make sure the FDD data and power cables are properly connected.
- Check that relevant switches and jumpers for the FDD are set correctly.
- Check that FDD is properly configured.
- Run the BIOS setup utility and make sure the Legacy Diskette A field under the Advanced | Floppy Configuration menu is set as **1.44/1.25 MB 3 1/2**.

HDD activity indicator does not light.

Do the following:

- Make sure the data and power cables are connected correctly.
- Check that relevant switches and jumpers on the hard drive and on the backplane board (for hot-plugs HDD) are set correctly.

DVD drive activity indicator does not light.

Do the following:

- Make sure the IDE and power cables are properly connected.
- Check that relevant switches and jumpers on the drive are set correctly.
- Check that the drive is properly configured.

DVD tray cannot be ejected.

Insert the tip of a paperclip into the small hole on the DVD drive. Slowly pull the tray out from the drive until the tray is fully extended.

DVD drive cannot read a disc.

Do the following:

- Make sure you are using the correct type of disc.
- Make sure the disc is properly seated in the drive.
- Make sure the disc is unscratch and free of any contaminant.
- Make sure the drive's IDE and power cables are properly connected.

Newly installed memory modules are not detected.

Do the following:

- Make sure the memory modules specifications comply with the system requirements.
- Make sure the memory modules have been populated according to the system guidelines.
- Make sure the memory modules are properly installed on their mainboard slots.

Network connection indicators do not light.

Do the following:

- Check the cabling and network equipment to make sure that there are in proper condition.
- Reinstall the network drivers.
- Try another port or hub on the switch.

Network activity indicators do not light.

Do the following:

- Make sure the correct network drivers are loaded on the system.
- Network might be idle.

Peripheral device connected to a USB port does not work.

Do the following:

- Reduce the number of external devices connected to a USB hub.
- Refer to the documentation that came with the device.

There is problem with the software program.

Do the following:

- Verify that the software is properly configured for the system.

  Refer to the software installation and operation documentation for instructions on setting up and using the software.
- Try a different version of the software to see if the problem is with the copy you are using. If the other version runs correctly on the system, contact your vendor about the defective software.

No characters appear on the display monitor.

Check the following:

- Is the keyboard functioning? Test it by turning the Num Lock function on and off to check if the Num Lock indicator lights up.
- Is the display monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the display monitor signal cable properly connected?
- Does this display monitor work correctly if plugged into a different system?
- Remove all add-in cares and see if the system boots.

  If reboot is successful, install the cards back in one at a time with a reboot between each addition to determine if one of them is causing the problem.
- Make sure that you have properly installed system compliant memory modules, and that there populated according to the system guidelines.
- Make sure that you have installed system compliant processors, and that there populated according to the system guidelines.

If you are using an add-in video controller card, do the following:

1. Verify that the display monitor works using the onboard video controller.
2. Verify that the add-in video controller card is fully seated in its slot.
3. Reboot the system for the changes to take effect.
4. If there are still no characters on the screen after you reboot the system, reboot it again.

   Take note of the beep codes emitted during POST. This information may be required if you seek technical assistance.

   If POST does not emit any beep code and characters still does not appear, the display monitor or the video controller may be defective. Contact your local Acer representative or authorized dealer for technical assistance.

Appendix A: Server management tools

This appendix gives an overview of the different server management tools supported by your server.

Server management overview

The server management tools supported by the Altos G540 system is listed in the table below.

Tool	Function
*Phoenix*BIOS Setup Utility	Use this tool to configure the different hardware components and system functions (memory, processor, and security settings). Go to the BIOS setup chapter on page 69 for details.
ASM (Acer Server Management)	This utility allows a system administrator to remotely manage the server in a network environment through a single management station. For detailed instructions on how to install and use this utility, refer to the user documentation accompanying it.
Onboard SATA RAID Configuration Utility	Use any of these utilities to configure RAID for the system hard drives. The two LSI utilities are only available when their corresponding SAS controller board option is installed in the server. Proceed to the next section for instructions on how to use these utilities.
LSI 1068 SAS Configuration Utility	
LSI MegaRAID SAS RAID Configuration Utility	
Note: Support for the LSI 1068 SAS Configuration Utility may not be available for all system releases.	

RAID configuration utilities

RAID option for the Altos G540 system is provided through either the onboard SATA controller or through an external controller board option (LSI 1068 SAS controller or LSI MegaRAID SAS RAID controller).

Caution: Creating a RAID volume erases all data previously saved in the hard drives. Make sure that you back up important files before starting a RAID configuration process.

Onboard SATA RAID Configuration Utility

This section explains how to create a RAID 1 volume using the onboard SATA controller.

To enable the onboard SATA RAID controller:

1. Turn on the server and the monitor.

   If the server is already turned on, close all open applications, then restart the server.
2. During POST, press **F2** to access the BIOS Setup Utility.
3. Select the **Advanced | I/O Device Configuration** submenu.
4. Change the setting of the SATA Controller Mode Option field from Compatible to **Enhanced**.
5. Change the setting of the SATA RAID Enable field from Disabled to **Enabled**.
6. Press **F10**.
7. Select **Yes** to save the new SATA RAID settings and close the Setup Utility.

To initialize the Onboard SATA RAID Configuration Utility:

Note: There must be more than two SATA hard drives installed in the system, otherwise the Intel Matrix Storage Manager option ROM will be disabled.

1 Turn on the server and the monitor.

2 During POST, press **Ctrl-I** on the Intel Matrix Storage Manager option ROM prompt.

To create a RAID 1 volume:

1 On the Onboard SATA RAID Configuration Utility, select **1. Create RAID Volume** under the Main Menu, then press **Enter**.

2 Specify a name for the new RAID volume, then press **Enter**.

3 Use the **Up** and **Down** arrow keys to select **RAID 1 (Mirror)** for the RAID level, then press **Enter**.

4 Use the space bar to select the drives that you want to add into the array, then press **Enter**.

This step is only applicable for systems with more than two hard drives installed.

5 Press **Enter** to accept the RAID 1 volume capacity.

6 Press **Enter**, then **Y** to start creating the new RAID 1 volume.

Once the new RAID 1 volume is created, it'll be listed under the Disk/Volume Information.

7 Revert to the Main Menu and select **4. Exit the MAIN MENU**.

Proceed to the installation of the operating system. Refer to the user documentation that came with your OS for related instructions.

LSI 1068 SAS Configuration Utility

This section explains how to create a RAID 1 volume when the LSI 1068 SAS controller board is installed.

To initialize the LSI Logic Config Utility:

1. Turn on the server and the monitor.

   If the server is already turned on, close all open applications, then restart the server.
2. During POST, press **Ctrl**-**C** on the SAS BIOS prompt.

To load the factory default RAID setting:

1. On the LSI Logic Config Utility, press **Alt**-**N** to display Global Properties.
2. Select **Restore Defaults**, then press **Enter**.
3. Press **Esc**, then select **Save changes then exit this menu**.
4. Select **SAS1068**, then press **Enter**.
5. Select **Advanced Adapter Properties**, then press **Enter**.
6. Select **Restore Defaults**, then press **Enter**.
7. Press **Esc** twice, then select **Save changes then exit this menu**.

To create a RAID 1 volume with a hot spare disk:

1. On the LSI Logic Config Utility, click **SAS1068**, then press **Enter**.
2. Select **RAID Properties**, then press **Enter**.
3. Select **Create IM Volume**, then press **Enter**.
4. Move the cursor to the RAID Disk column.
5. Press the space bar to change the setting from No to **Yes**.

   The Drive Status will be marked as Primary.
6. Move the cursor to another disk.
7. Press the space bar to change the setting from No to **Yes**.

   The Drive Status will be marked as Secondary.

8 Move the cursor to the Hot Spr column and select another disk.

9 Press the space bar to change the setting from No to **Yes**.

The Drive Status will be marked as Hot Spare.

10 Press **C**, then select **Save changes then exit this menu**.

11 Press **Esc** twice and select **Exit the Configuration Utility and Reboot**.

Proceed to the installation of the operating system. Refer to the user documentation that came with your OS for related instructions.

LSI MegaRAID SAS RAID Configuration Utility

This section explains how to create a RAID 1 volume when the LSI MegaRAID SAS RAID controller board is installed.

To initialize the LSI MegaRAID SAS RAID Configuration Utility:

1 Turn on the server and the monitor.

If the server is already turned on, close all open applications, then restart the server.

2 During POST, press **Ctrl**-**H** on the RAID BIOS prompt.

After POST completion, the Adapter Selection window will appear.

3 Click **Start** to launch the Configuration menu.

To load the factory default RAID setting:

1 On the Configuration menu, select **Adapter Properties** to display the current adapter settings.

2 Click **Next** to change the adapter setting.

3 Change the setting of Set Factory Defaults from No to **Yes**, then click **Submit**.

4 Press **Ctrl**+**Alt**+**Del** to reboot the server.

To create and initialize a RAID volume:

1 Access the Configuration menu.

2 Click **Configuration Wizard**.

3 Click **Add Configuration**, then click **Next**.

4 Click **Custom Configuration**, then click **Next**.

5 Use the **Ctrl** key to select the drives that you want to add into the array.

6 After selecting the drives, click **Accept DG**, then **Next**.

7 Select the RAID Level you want to use.

8 Create the logical volume and specify its size on the Select Size field, then click **Accept**.

9 After creating a logical volume on all of the RAID volume, click **Accept**, then **Yes** to save the configuration.

10 Click **Yes** to initialize the new logical drives.

All the created logical drives will be listed.

11 Click on **Home** to revert to the Configuration menu.

12 Select **Exit**, then **Yes**.

13 Press **Ctrl**+**Alt**+**Del** to reboot the system.

Proceed to the installation of the operating system. Refer to the user documentation that came with your OS for related instructions.

To assign a hot spare disk:

1 Access the Configuration menu.

2 Under Physical Drives, select a free disk marked as **UNCONF GOOD**.

3 Select **Make Global Dedicated HSP** or **Make Dedicated HSP**, then click **Go**.

4 Click on **Home** to revert to the Configuration menu.

Under Physical Drives, the assigned hot spare disk is marked as **Hotsapare** and highlighted in pink.

Appendix B: Rack mount configuration

This appendix shows you how to set up the
Altos G540 server in a rack mount configuration.

Rack installation information

The Altos G540 server system can also be mounted in a rack-model position. A rack mount kit is available for customers who want to convert a tower-mounted system to rack-model design. To purchase a rack mount kit, contact your local Acer representative or order directly from http://www.acer.com/.

Rack installation precautions

Follow the rack manufacturer's safety and installation instructions for proper rack installation.

The following additional rack safety installation measures should be considered:

- Anchor the equipment rack

  The equipment rack must be anchored to an unmovable suitable support to prevent the rack from falling over when one or more systems are fully extended out of the rack assembly. You must also consider the weight of any other devices installed in the rack assembly. The equipment rack must be installed according to the manufacturer's instructions.

- Main AC power disconnect

  You are responsible for installing an AC power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the system(s).

- Earth ground the rack installation

  To avoid the potential for an electrical shock hazard, the rack assembly itself must be suitably earth grounded, according to your local regional electrical codes. This typically will require the rack to have its own separate earth ground. We recommend you consult your local approved electrician.

- Elevated operating ambient temperature

  The maximum operating temperature of the system is 35°C (95°F). Careful consideration should be given to installing the system in an environment compatible with the 35°C (95°F) maximum ambient temperature.
- Reduced airflow

  The amount of airflow required for the safe operation of the equipment should not be compromised when installing the system in a rack.
- Mechanical loading

  Exercise care when mounting the system in a rack to avoid any accidents.
- Circuit overloading

  Appropriate consideration should be given when connecting the supply circuit to the system to avoid any circuit overload. The system name plate rating should be used when addressing concerns about circuit overload.

Rack mount kit

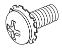
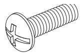
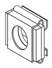
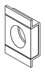
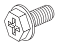
The rack mount kit components and their respective function is listed on the table below.

Component	**Quantity**	**Usage**
Mounting rails	2	Allows the server to slide in and out of the rackmount for maintenance purposes. Each mounting rail consists of the following: • Fixed outer rail. Attaches to system rack with M6 x 13 screws. • Inner rail. Attaches to the sides of the server with M4 x 5 screws. • Middle sliding piece has a steel ball gearing to control server movement from and into the rackmount.

Component	Quantity	Usage
Front brackets	2	Attach the mounting rails to the server.
Rear brackets	2	
Side handles	2	Attached to the sides of the server.
Screw pack		Secures the different rack components. Refer to the next section for details.

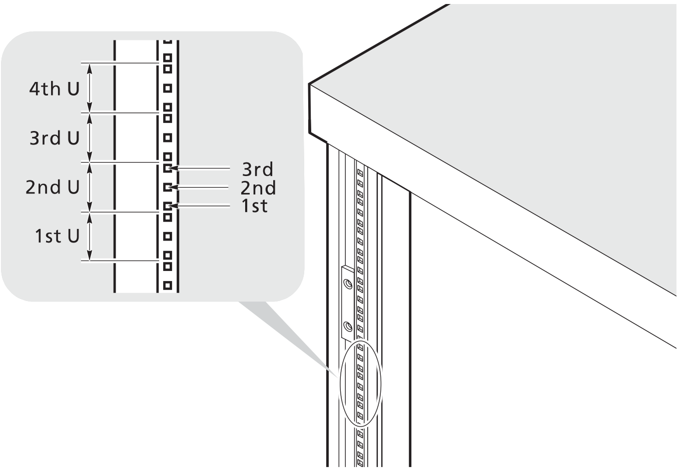
Screw types

The following screws are used in the assembly of the Altos G540 system and bundled rack-mountable components.

Screw type	Quantity	Figure	Usage
M6 X 13	8		Install the mounting rails to the rack.
M6 x 18	2		Secure the cable arm to the rack.
M6 cage nut	2		Install into the vertical rails of the rack for cable arm support.
Distand	8		Install into the vertical rails of the rack for server support.
M4 x 5	4		Secure the mounting rails to the chassis.
U#6-32 x 6.4	6		• Secure the rack handles to the chassis (4). • Attach the cable arm to the chassis (2).

Vertical mounting hole pattern

The four vertical rails of the system rack contain mounting holes arranged in a manner shown in the figure below.



The system occupies 5U in the rack. Count the U positions and hole numbers from the bottom up.

The distance from the center of two holes with closer spacing to the center of the next pair is equivalent to 1U.

Note: The unit of measurement used in this guide is "U" (1U = 1.75 inches or 44.45 mm). The total sum of the heights of all components in the rack measured in "U" cannot exceed the height of the rack. For more information, refer to the documentation that came with the system rack.

When installing components, you must start your measurement from the center of the two holes with closer spacing. Otherwise, the screw holes on the component may not match those on the rack.

Rack installation procedures

Preparing the server for rack installation

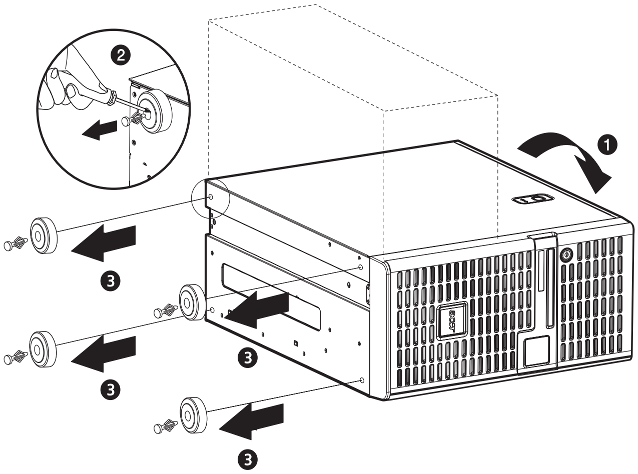
1 Remove the foot stands from the server.

  (1) Lay the server on its side on a flat, stable surface.

  (2) Use a flat-blade screwdriver to remove the stoppers securing the foot stands to the chassis.

  (3) Detach the foot stands from the server.

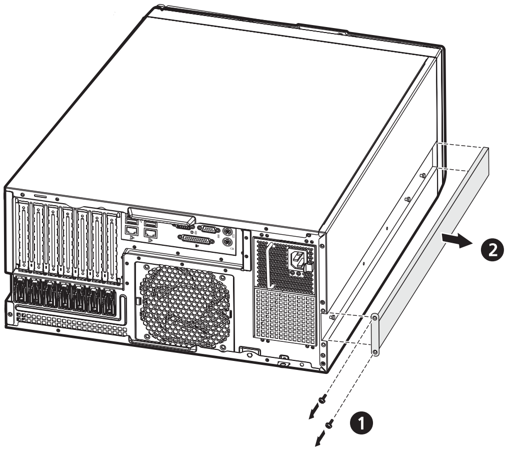
  Store the foot stands and its toppers for future reassembly.



2 Expose the installation recess for the topside inner rail.

  (1) Remove the two screws securing the recess cover on the topside of the server.

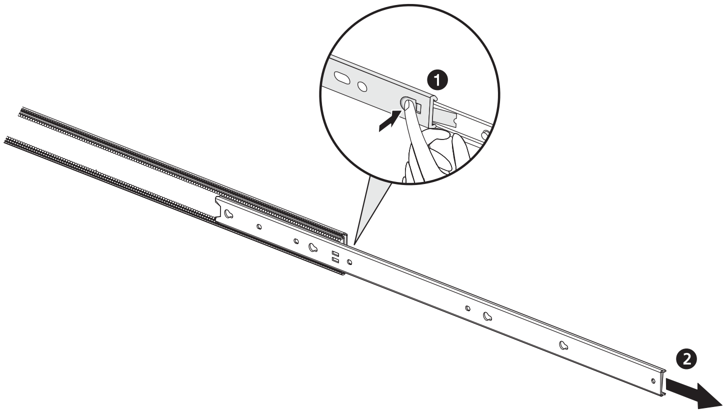
  (2) Detach the recess cover from the server.



3 Remove the inner rails from the mounting rails.

(1) Extend the inner rail from the mounting rail until the rail release latch is exposed.

(2) Depress the release latch **(1)** and slip the inner rail out **(2)**.



Do the same thing to the other mounting rail.

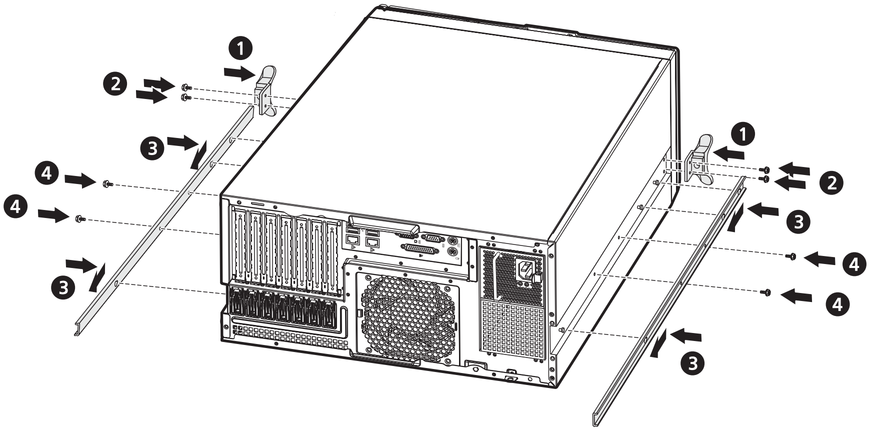
4 Attach the rack handles and inner rails to the server.

(1) Align the screw holes on the rack handles with those on the server.

(2) Secure the rack handles with two U#6-32 x 6.4 screws each.

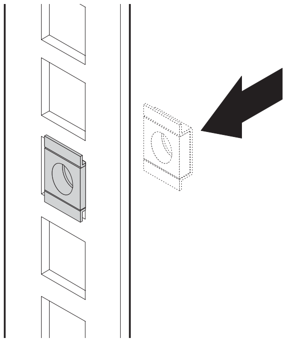
(3) Insert the pegs on the server with the notches on the mounting rails, then slide the mounting rails backward to seat them properly.

(4) Secure the mounting rails to the server with two M4 x 5 screws each.



Preparing the rack for server installation

1 Install eight distands into the vertical rails of the system rack.

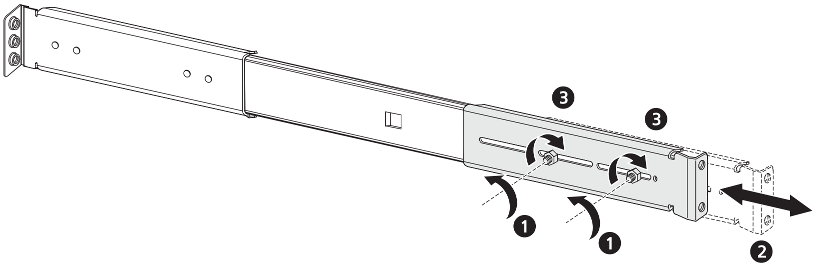


2 Adjust the front bracket to the preferred length.

(1) Turn the captive thumbscrews counterclockwise to loosen them.

(2) Slide the front bracket to the preferred length.

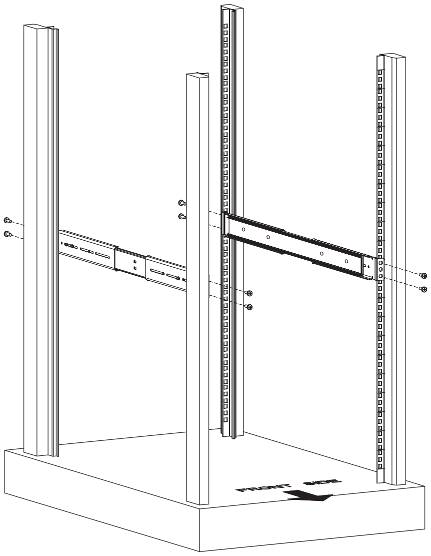
(3) Secure the front bracket in its preferred position by turning the captive thumbscrews clockwise.



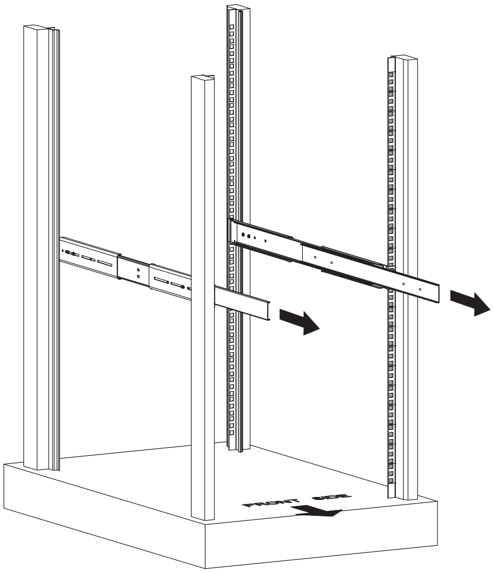
Do the same thing to the other front bracket.

3 Install the mounting rails to the system rack.

(1) Install the mounting rails to the rack by using four M6 x 13 screws for each rail.



(2) Extend the middle sliding piece of each mounting rail forward until you hear an audible click.

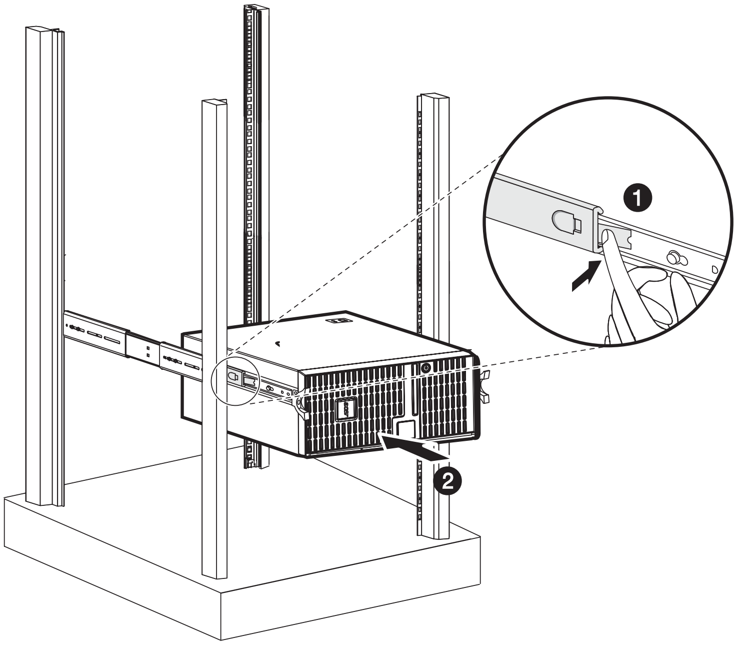


Installing the server in the system rack

Warning! To avoid injury, care should be taken when pressing the inner rail release latches and sliding the component into the rack. It also recommended that two or more people help in installing the server to the rack to minimize the chances of accidents.

1 Press the release latch on both sides of the rack mounting rails.

2 Carefully align the inner rails attached to the server with the fully extended mounting rails on the rack, then push the server into the rack until you hear an audible click.

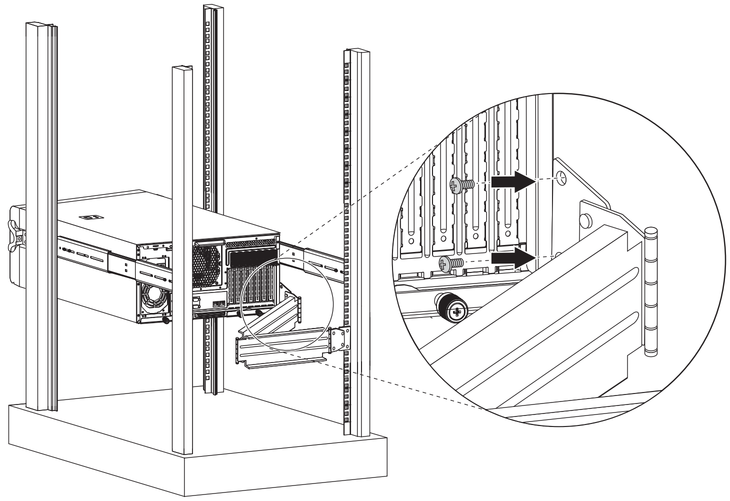


Installing the cable arm option

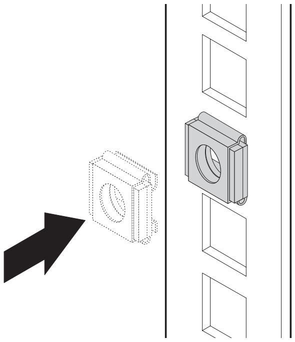
The cable arm option allows you to tie-wrap all cables to and from the system. As you slide the system in and out of the rack, the cable arm collapses and extends, keeping the cables untangled and attached to the system.

To install the cable arm:

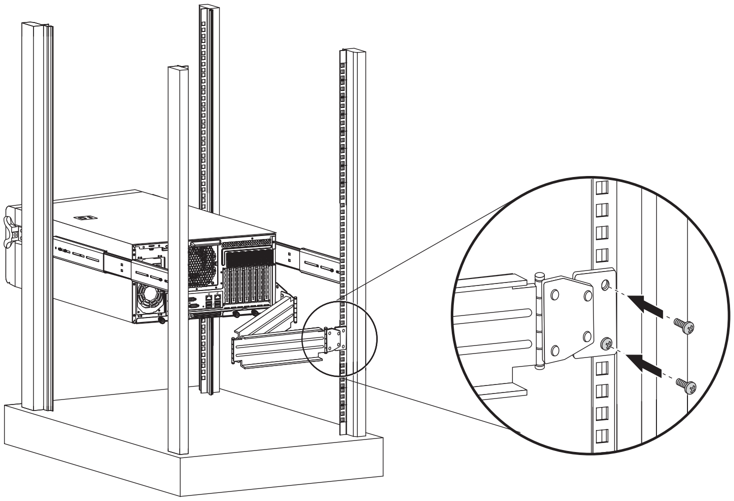
1. Attach the cable arm to the rear panel using two U#6-32 x 6.4 screws.



2. Install two M6 cage nuts into the vertical rail to which the cable arm is to be attached.



3 Extend the cable arm enough to attach it to the installed M6 cage nuts, and secure it with two M6 x 18 screws.

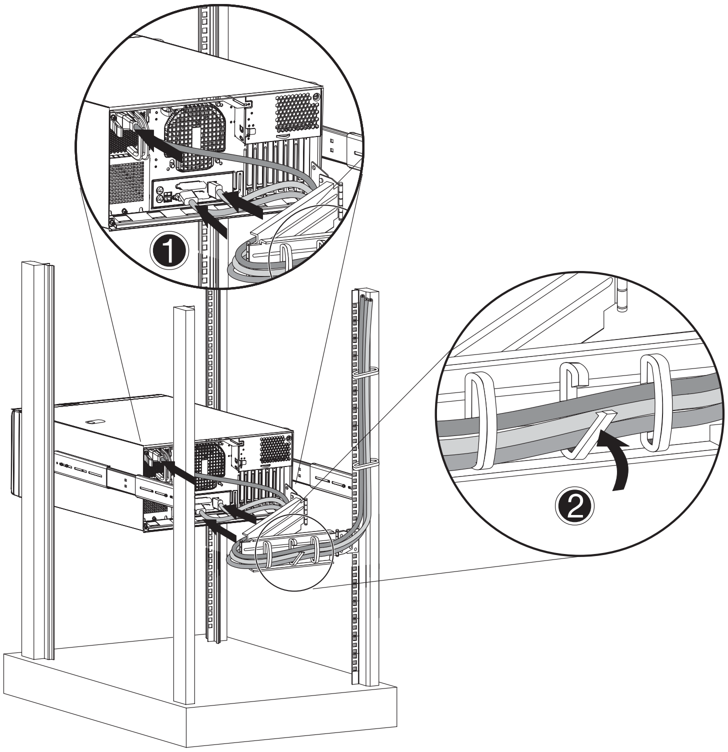


4 Arrange the server cables.

(1) Connect the power, peripheral and networking cables into their appropriate ports on the rear panel.

Go to page 28 for related instructions.

(2) Secure all server cables to the cable arm using the cable clamps.



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